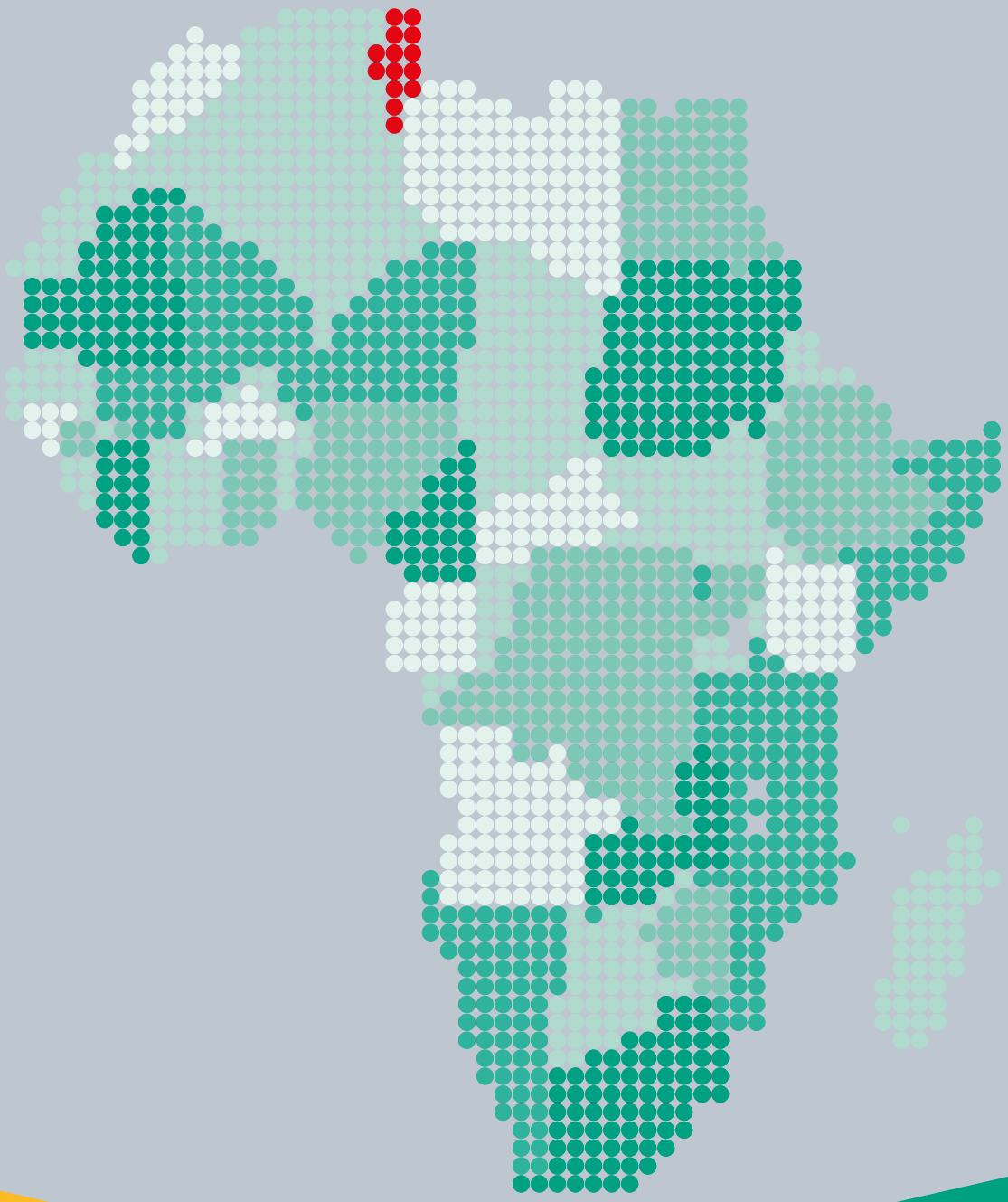
Digital inclusion and mobile sector taxation in Tunisia



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Deloitte contact
Davide Strusani
TMT Economic Consulting, London
dstrusani@deloitte.co.uk
www.deloitte.co.uk

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Executive Summary

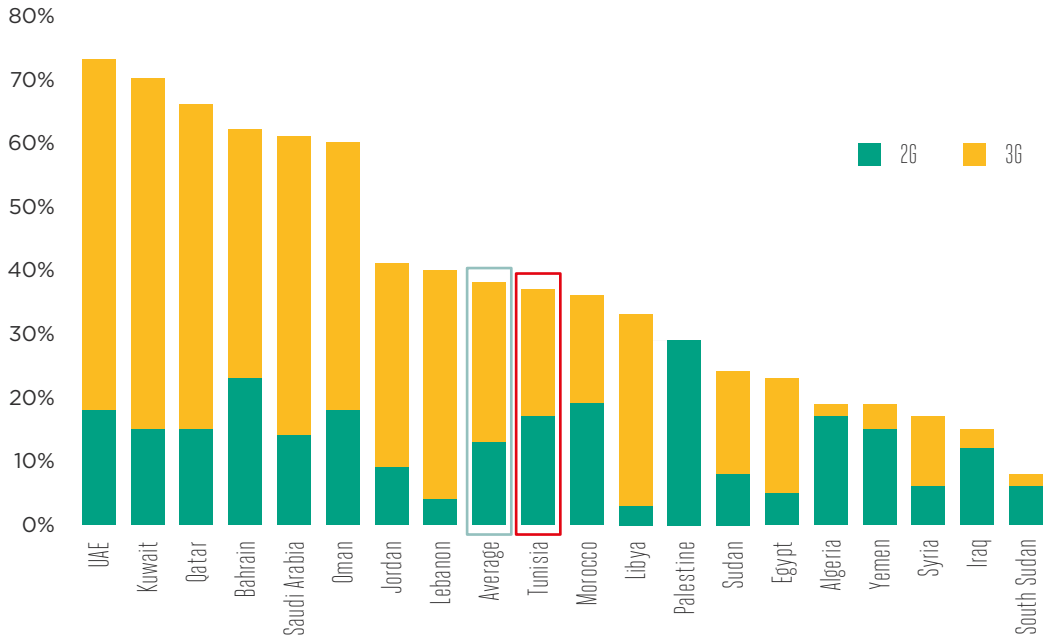
Barriers towards digital inclusion need to be addressed to take Tunisia into the next stages of connectivity

The Tunisian mobile market is served by three operators (Ooredoo, Tunisie Telecom and Orange) who currently connect 6.6 million unique subscribers, or approximately 58% of the population, following strong growth of the market since the introduction of competition in 2001. Whilst the level of basic voice connection is relatively high compared to neighbouring countries, Tunisian penetration levels remain behind a number of Arab states. In addition, the majority of users still utilise 2G connections, and growth of 3G connections has been slow.

Whilst more progress is needed to reach the level of a mature mobile market, mobile services are already making a number of positive contributions to the Tunisian economy and society. By enabling greater productivity and exchange of information for business and social purposes, mobile has the potential to promote both digital inclusion and economic growth, helping to increase the living standards and improve Tunisia's international competitiveness. Mobile initiatives have the potential to support and enhance social development. For example, applications like "Najja7ni" provide a platform for improving educational and employment outcomes for young people in a country that is suffering from high unemployment. At the same time, mobile banking applications such as Mdinar help extend banking to the unbanked, and initiatives such as IntilaQ and Orange Tunisia's Developer Programme promote entrepreneurship and innovation.

Despite the progress of the mobile industry, significant gaps in digital inclusion persist in Tunisia. A majority of the population do not have access to the mobile internet and broadband services. 3G penetration in Tunisia is falling behind Arab states with similar voice penetration levels such as Jordan and Lebanon.

Mobile internet unique subscriber penetration in selection of Arab states, Q2 2015



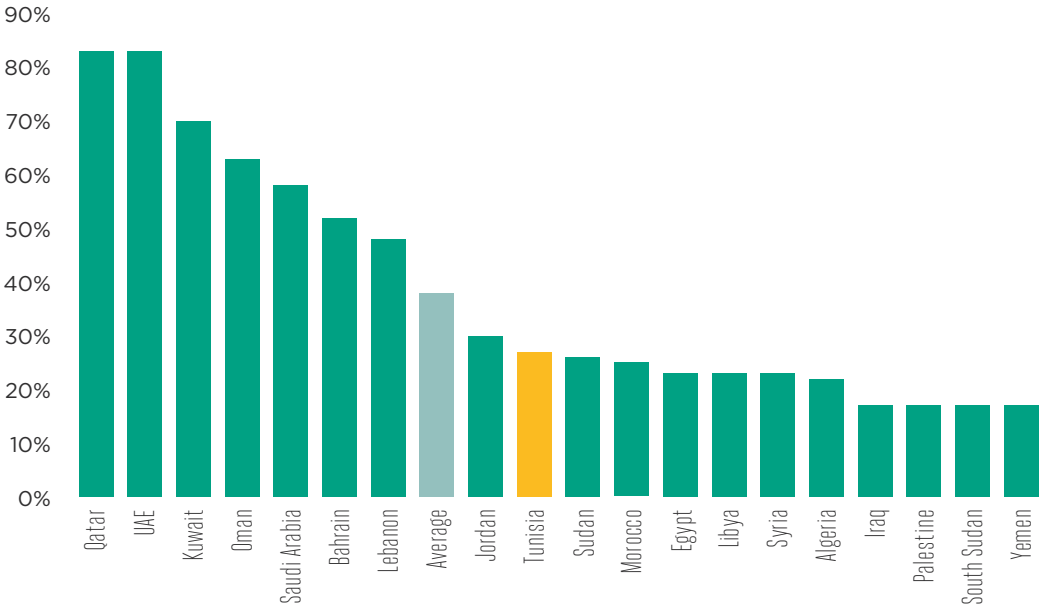
Source: GSMA Intelligence database. Note that Palestine is experiencing spectrum allocation difficulties which affect 3G uptake

Figure 1

This limited access to the mobile internet, and in particular high-speed mobile internet, limits Tunisians' access to services, and hence the further benefits to Tunisian society, that are available elsewhere.

As may be expected given mobile internet penetration, the adoption of smartphone devices is also lagging behind regional leaders.

Smartphone share of total connections in Arab states, Q2 2015



Source: GSMA Intelligence database

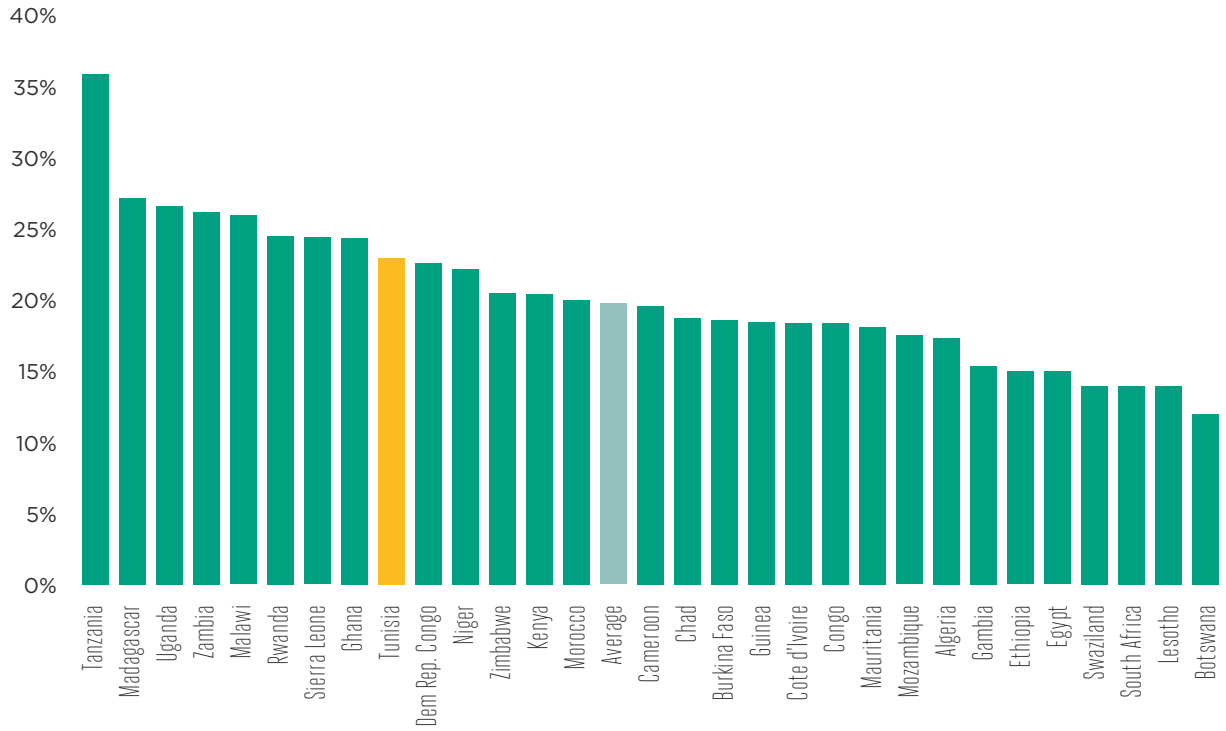
Figure 2

The World Bank has suggested that by favouring the export sector and shielding certain sections of the domestic sector from competition, Tunisia has created widespread economic disparities among different regions. The coastal regions are seen to have been the main beneficiaries of the differential treatment of the exporting sector, while the inland regions, which primarily produce for the domestic sector, have fallen behind. Unemployment and poverty rates are considerably higher in the inland regions and infrastructure development has subsequently lagged behind. As a result, mobile network infrastructure is underdeveloped in these, predominantly rural, regions and the ITU estimate that about 50% of the rural population are not covered by 3G networks. As such, Tunisians in particular regions are at an increasing risk of being left behind in a digital divide.

Higher taxation on mobile compared to other goods and services risks further limiting digital inclusion, investment and growth in the mobile sector, and Tunisia's overall economic growth

Mobile consumers pay a 5% *ad valorem* industry fee on mobile services, such as calls, SMS, MMS, data, international incoming and national interconnection, roaming, mobile money and on sales of 3G devices. The industry fee is a mobile-specific tax that adds to the cost of service consumption and the overall cost of owning and using a mobile phone. When all taxes on devices and services are taken into consideration, taxes accounted for 23% of the Total Cost of Mobile Ownership (TCMO), a measure of the annual cost of mobile ownership for the average user, in Tunisia in 2013. Whilst there is limited information on a number of Arab States, this can be compared to the African average of 20%.

Tax as a percentage of TCMO in selected African countries with available data, 2013



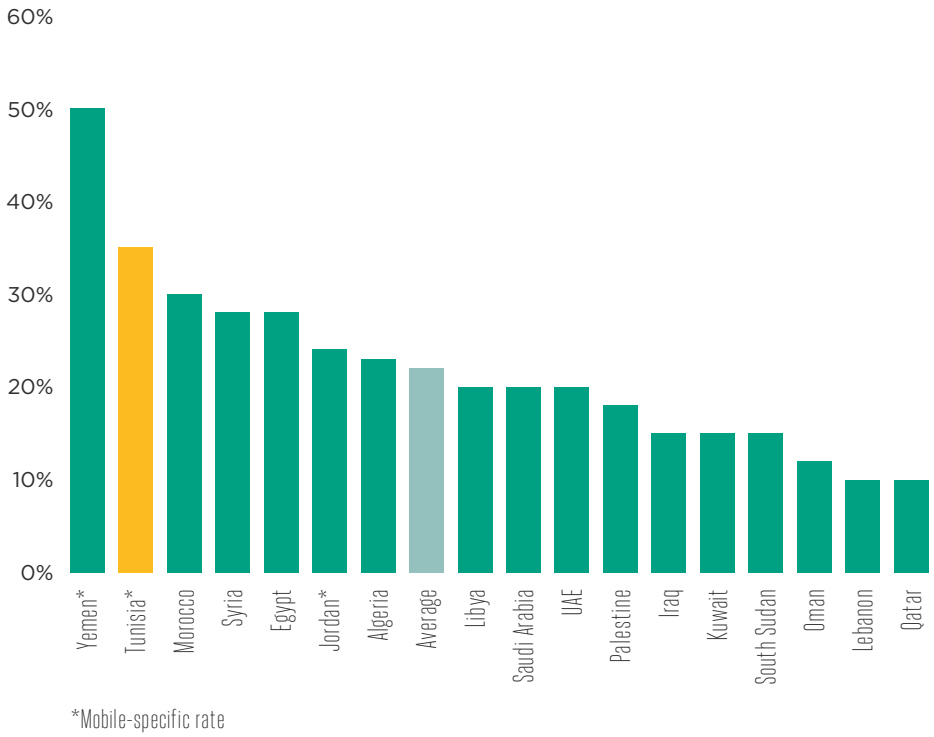
Source: Deloitte analysis based on GSMA/Deloitte (2015): "Digital inclusion and mobile sector taxation"

Figure 3

By increasing the cost to consumers, this tax burden on consumers has the potential to reduce demand for mobile services and hence slow the growth of the sector. This is particularly an issue within Tunisia given that the World Bank found that a representative household in the bottom 40% income bracket would need to spend about 44% of its disposable income to afford mobile broadband services.

In addition to the general taxes such as the corporation tax, the stamp duty and fees paid to national regulatory authorities, operators are also required to pay a number of sector specific taxes and regulatory fees. In particular, a mobile-specific corporation tax of 35% is levied on the sector, compared to the 25% rate on standard goods and services. The rate is the fourth highest among Arab states and only two other states, Yemen and Jordan, impose mobile-specific corporation tax rates.

Corporation tax rates in the Arab states with available data, 2015



Source: Deloitte analysis on International Bureau of Fiscal Documentation (IBFD) data

Figure 4

As a result of these taxes and fees on mobile consumers and operators, the mobile industry paid more than US$ 433 million in recurring tax and fee payments in 2014, representing 37% of total sector revenues in Tunisia. High tax and fee payments potentially affect incentives for investment and growth of the mobile sector.

Mobile-specific taxes are inefficient and act as a barrier towards increased digital inclusion

Mobile services create positive externalities across society by facilitating communication and the flow of information, increasing productivity throughout the economy. However, Tunisian mobile consumers and operators face sector-specific taxes. These taxes are similar to taxes levied on products which governments typically find desirable to discourage consumption of, e.g. alcohol, tobacco, and gambling. This may disincentivise digital inclusion and limit the benefits that mobile is able to provide to the Tunisian society and the economy.

The mobile-specific taxes that are levied in Tunisia do not appear to fully align with many of the recognised principles of taxation outlined by organisations such as the IMF. The table below summarises these principles and the potential impacts of mobile-specific taxation on the Tunisian economy.

Principles of taxation

1. In general, taxation should be broad based	**Mobile-specific taxes such as the industry fee may lead to inefficiently low consumption and investment in the mobile sector.** • The 5% industry fee is levied on the usage of mobile services and sales of 3G devices and may create distortions in consumers' purchasing decisions.
2. Taxes should account for sector and product externalities	**All mobile-specific taxes and fees fail to account for positive externalities and discourage consumption.** • In addition to the industry fee, mobile is subject to a number of sector-specific regulatory fees even though the sector generates positive impacts in the wider economy through spillover effects. Taxing mobile in a disproportionate manner could be taken as a signal that the government wishes to discourage rather than encourage consumption.
3. The tax system should be simple, understandable and enforceable	**Uncertainty and lack of transparency over taxation systems may discourage investment and increase enforcement costs for the government.** • Taxation in Tunisia is marked by unpredictability and discretionary implementation of rules resulting in high compliance costs for businesses. The taxation burden on the mobile sector has increased in recent years due to increases in the stamp duty, the registration fee and the tax for local authorities.
4. Incentives for competition and investment should be unaffected	**Higher taxes on a given industry compared to other sectors reduce the incentives for investment in the industry, both domestically and internationally and could reduce investment in infrastructure and quality of service improvements.** • The mobile sector is subject to a mobile-specific corporation tax rate of 35% compared 25% for standard goods and services.
5. Taxes should not be regressive	**Mobile-specific taxes such as the royalty fee increase barriers to access and hit the poorest consumers hardest.** • Mobile-specific taxation such as the industry fee on mobile services and sales of 3G devices increase the final price of mobile services and risk creating a barrier to affordability and mobile access. The barrier is greater for low income consumers and therefore risk excluding them from the benefits of mobile and internet.
6. Spectrum prices and other regulatory fees should cover the cost of spectrum management and reflect the rent associated with this scarce resource	**The incentive to invest should be maintained by appropriately incorporating all costs incurred during the duration of a licence, including taxes, while maximising the economic benefits to society.** • Increased taxation erode the value of spectrum and reduces incentives to invest. Taxes have been raised following spectrum auctions and mobile operators pay higher corporation taxes than standard.

Source: Deloitte analysis based on IMF, Tax policy for developing countries, 2001, and ITU, ICT regulation toolkit, 2014

Table 1

By transitioning to a tax system where mobile is treated equally to other goods, the Tunisian government can promote digital inclusion, economic growth and fiscal stability

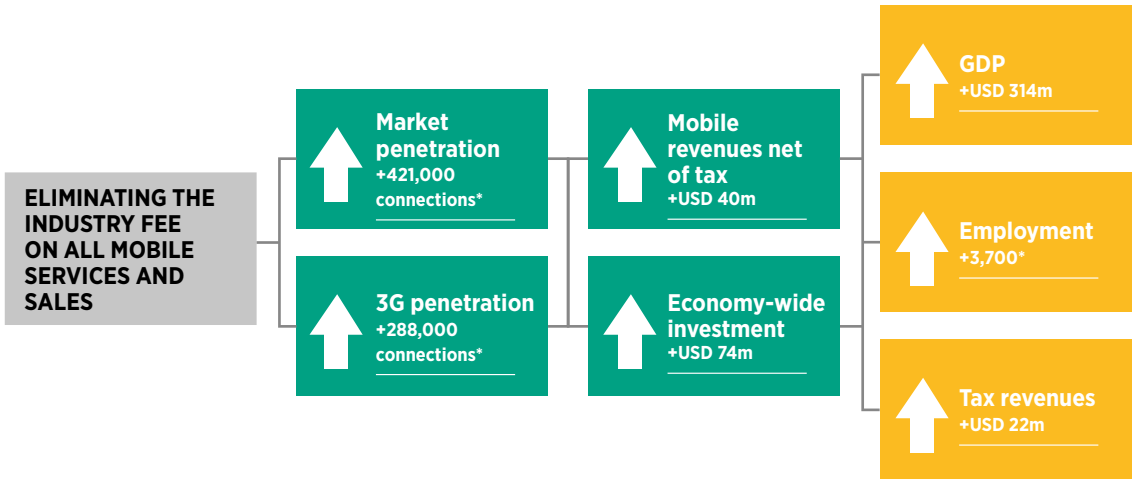
The mobile industry has a clear role in supporting economic development, providing government revenues and therefore contributing to public services. However, seeking to impose a greater burden of taxation on mobile relative to other goods and services, whilst potentially delivering short-term benefits to government revenues, could be detrimental to long-run socioeconomic development.

By transitioning to a taxation structure where the mobile industry is treated equally to other sectors of the economy, the Tunisian government can increase digital inclusion and economic growth, with the potential to generate higher tax revenues through more efficient and broader-based taxation. Reforming mobile taxation has the potential to further enable the investment required to expand mobile broadband network infrastructure. A phased movement towards eliminating sector-specific taxation would be consistent with the international principles of efficient taxation described above.

A model of the Tunisian mobile sector and its macroeconomic impacts was developed to estimate the impacts of changes to taxation on mobile penetration, economic growth and tax revenues. The quantitative impacts of a series of potential reforms are estimated in this report and compared with a base case scenario. The impacts of any potential reforms are estimated separately and interactions between policy reforms are not considered.

Eliminating the 5% industry fee on all mobile services and sales has the potential to reduce the cost of mobile services for consumers, incentivising many non-subscribers to acquire a mobile connection for the first time. This could add an additional 421,000 mobile connections between 2016 and 2020, of which approximately 288,000 are expected to be mobile broadband connections.

Potential impact of eliminating the industry fee on all mobile services and sales relative to the base case



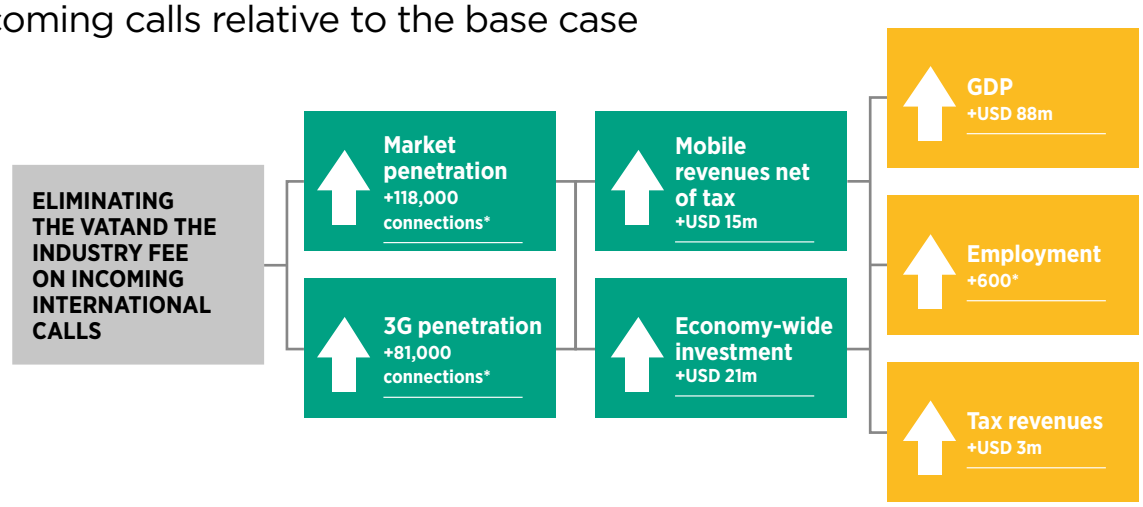
*Source: Deloitte analysis based on operator data, GSMA intelligence database, IMF World Economic Outlook database and World Bank World Development Indicators database. Variables marked by * refer to the cumulative impact over the period 2016-2020, otherwise the potential impact in 2020 relative to the base case is reported.*

Figure 5

Enhanced mobile usage could drive growth within the sector and its supply chain and increase productivity for new users. Tunisian GDP has the potential to increase by US$ 314 million and investment by US$ 74 million. As a result of this enhanced economic activity, the government of Tunisia could achieve revenue neutrality within three years and gain up to US$ 22 million in additional revenues in 2020.

Eliminating the VAT and the industry fee on incoming international calls has the potential to reduce the cost of international calls, making it cheaper for Tunisians consumers and businesses to communicate internationally. This tax reform could potentially generate 118,000 new connections, of which 81,000 are 3G connections, over the 2016-2020 period, relative to the base case. In addition, through increased mobile penetration and mobile activity, GDP could increase by US$ 88 million to 2020, with a cumulative impact of US$ 291 million over the period of 2016-2020.

Potential impact of eliminating the VAT and industry fee on international incoming calls relative to the base case

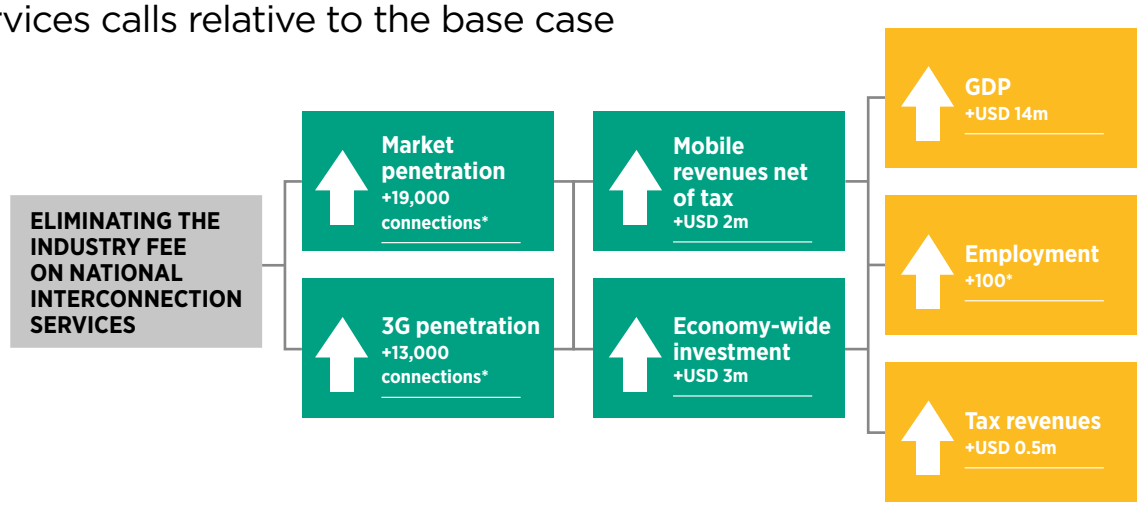


*Source: Deloitte analysis based on operator data, GSMA intelligence database, IMF World Economic Outlook database and World Bank World Development Indicators database. Variables marked by * refer to the cumulative impact over the period 2016-2020, otherwise the potential impact in 2020 relative to the base case is reported.*

Figure 6

Eliminating the industry fee on national interconnection services has the potential to reduce the cost of national interconnection. While the economic effects are small, this would eliminate tax distortions on consumption of mobile services. By 2020 the number of connections could increase by 19,000, of which 13,000 are 3G connections.

Potential impact of eliminating the industry fee on national interconnection services calls relative to the base case



*Source: Deloitte analysis based on operator data, GSMA intelligence database, IMF World Economic Outlook database and World Bank World Development Indicators database. Variables marked by * refer to the cumulative impact over the period 2016-2020, otherwise the potential impact in 2020 relative to the base case is reported.*

Figure 7

Despite an initial fall in tax revenues after the reduction in tax, the government could potentially achieve tax neutrality within four years and in 2020 the increase in GDP growth could enable up to an additional US$ 0.5 million in tax revenues to be collected through more broad-based taxation.

Based on evidence from a series of studies and best practice principles in taxation, as well as on consultation with GSMA and mobile operators, tax reform in the mobile sector has the potential to further contribute to economic growth and government revenues over and above its current impact through:

- **Development of ICT usage across sectors:** By reducing mobile-specific taxation, such as the industry fee on mobile services and sales, the government could increase the number of mobile broadband connections, promoting digital inclusion. This has the potential to enable the widespread use of ICT across areas such as healthcare, education and the provision of government services. This in turn has the potential to create new opportunities for innovation and the development of new applications and content, fostering further growth within the sector.

- **Increased economic development:** Based on the modelling described above, the tax reform alternatives examined have the potential to increase the usage of mobile services and uptake of mobile broadband. If the industry fee on mobile services and sales were eliminated, it would have the potential to generate up to US$ 233 million in additional investment and increase GDP by up to US$ 1 billion over the period of 2016-2020.

- **Support in the transition towards a knowledge-based economy:** Reforming mobile sector taxation has the potential to encourage wide spread use of mobile broadband and the development of mobile applications for use in agriculture, healthcare and education. The creation of local content can also promote higher-skilled employment and the transition to a knowledge-based economy.

- **Improved network infrastructure:** Ensuring an equitable structure of regulatory fees has the potential to increase the investment required to further improve mobile broadband network infrastructure. Further international investment could allow for economies of scale for mobile operators, allowing reduced prices for consumers in the longer term and facilitating the spread of mobile broadband.

- **Sustainable government revenues:** Achieving the government's ICT objectives need not result in a reduction in government revenues in the medium to long term. By increasing productivity and economic growth, an elimination of the industry fee on all mobile services would be associated with tax neutrality in 2020 through the expansion of the tax base.

1. The mobile industry in Tunisia

1.1 Mobile services have enabled greater connectivity in Tunisia, but the potential of the mobile internet is unfulfilled

The mobile market in Tunisia is among the most developed in North Africa.[1] Currently, 58% of the population, or about 6.6 million people, have mobile phones and can access the benefits of mobile services in Tunisia. The mobile market has three operators: Ooredoo, Tunisie Telecom and Orange, with market shares of 46%, 32% and 22%, respectively, in mid-2015.[2]

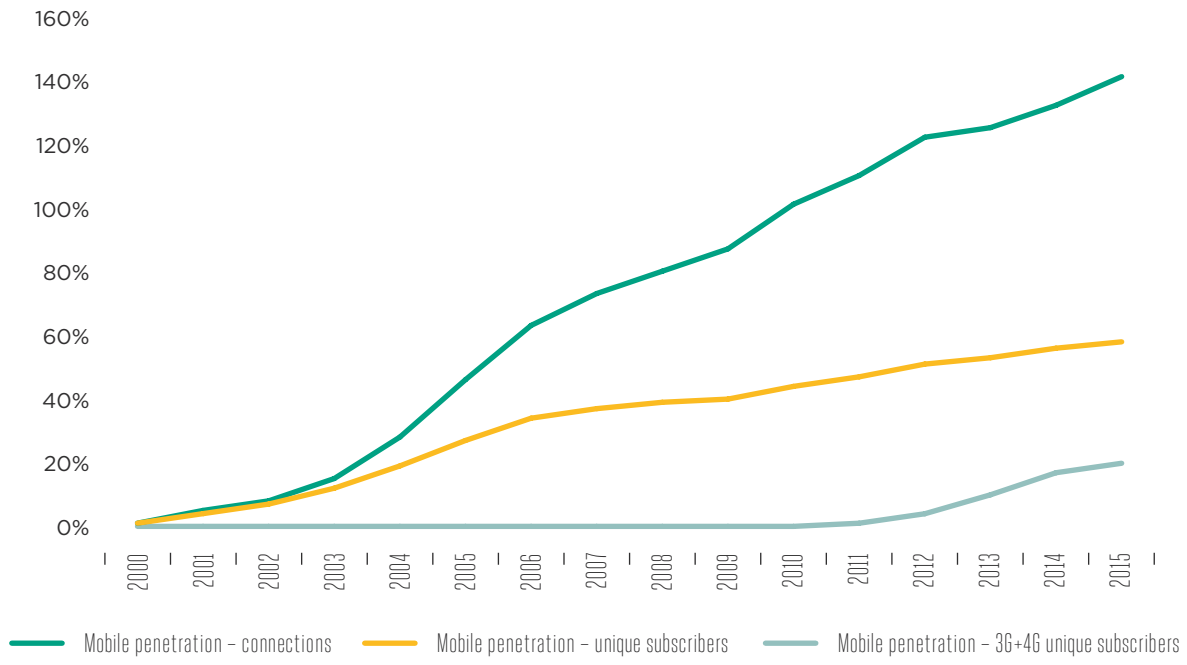
Regulatory reform in 2001 opened up the mobile market to competition by introducing a licensing regime for the supply of telecommunication services and networks.[3] Tunisiana (rebranded as Ooredoo in 2013[4]) joined the incumbent Tunisie Telecom as the second mobile operator in 2002.[5] Orange entered as the third operator in 2010 and launched the country's first commercial 3G network. Tunisie Telecom and Ooredoo launched 3G services in 2011 and 2012, respectively. According to the Minister of Communication Technologies and Digital Economy, 4G licences are planned to be granted in the summer of 2016[6].

Following the introduction of competition in the sector, the mobile market experienced strong growth. In the first and second year after the reform, the market grew by 375% and 78%, respectively, in terms of unique subscribers[7]. Growth has since slowed, although the average annual unique subscriber[8] growth was 12% between 2005 and 2015[9].

The adoption of the mobile internet, however, has not been as rapid as in other countries. While the average annual growth in annual subscribers for the mobile internet was 20% between 2010 and 2014, currently only 37% of the population have access to the mobile internet and only 20% have access to faster mobile internet through 3G connections, as shown by the graph below[10].

1. Buddecomm, Tunisia: Telecoms, Mobile and Broadband – Market insights and statistics, 2015.
2. GSMA Intelligence database. Market shares are expressed as the share of connections of total connections.
3. Buddecomm, Tunisia: Telecoms, Mobile and Broadband – Market insights and statistics, 2015.
4. http://www.ooredoo.com/en/section/who-we-are/our-milestones.
5. Buddecomm, Tunisia: Telecoms, Mobile and Broadband – Market insights and statistics, 2015
6. http://allafrica.com/stories/201509011459.html
7. Calculations were based in data from the GSMA Intelligence database.
8. Unique subscriber refers to the unique users who uses mobile services. Unique subscriber differ from connections in the sense that a unique subscriber can have several connections.
9. GSMA Intelligence database.
10. GSMA Intelligence database.

Mobile penetration rates in Tunisia



Source: GSMA Intelligence database

Figure 8

1.2 Mobile services are a key driver of social and economic development

Mobile makes an important contribution to the government's objectives of transitioning Tunisia to a vibrant, democratic market economy, and has the potential to make an even greater contribution with the growth of 3G mobile internet.

In 2013, the telecommunication sector contributed 6.3% of GDP in Tunisia.[11] Tunisia has been ranked first among African nations on the World Economic Forum's (WEF) Networked Readiness Index between 2008 and 2012.[12] The World Bank has, however, identified entry barriers and regulations as limiting competition in the sector.[13]

1. Mobile services promote digital inclusion and the growth of a knowledge-based economy

Digital inclusion means that the benefits of ICT should be available to all, regardless of location or socioeconomic status. Mobile services provide the most cost-effective way of achieving digital inclusion and, by facilitating the exchange of ideas and information, can support a move towards a knowledge-based economy.

The World Bank[14] has stated that the movement towards a knowledge-based economy should be the aim of all governments, as knowledge becomes increasingly crucial to preserving national competitiveness. It identifies four pillars of knowledge-

11. OECD, 2015. Tunisia: A reform agenda to support competitiveness and inclusive growth.
12. See the World Economic Forum's The Global Information Technology reports from 2008 to 2012.
13. World Bank, 2014. The Unfinished Revolution: Bringing Opportunity, good jobs, and greater wealth to all Tunisians
14. World Bank, The four pillars of a knowledge-based economy, 2009.

based economies, one of which is information infrastructure, with technology such as mobile phones required to facilitate effective communication and the dissemination and processing of information.

2. Mobile services enhance productivity, innovation and social development

By enabling businesses and government to deliver their services faster, and at a lower cost, mobile services increase productivity across the Tunisian economy. Mobile services can reduce transaction costs, making it less costly for Tunisians to communicate and conduct everyday business operations, supporting the expansion of businesses and enterprises. Through wider effects on the economy, this helps to increase living standards in Tunisia and improve Tunisia's international competitiveness.

Mobile services also create opportunities for investment, innovation and employment in the mobile sector and in a variety of other jobs that form part of the mobile ecosystem, such as equipment providers, workers in the network engineering and maintenance industry, and providers of related business services.

Mobile can also enable more effective delivery of public services and support social development. In particular, mobile and internet communication offers an effective means of bringing healthcare and education services to remote and under-served areas, through m-Government initiatives and mobile applications.

Many initiatives have been launched in Tunisia and around the world that harness the potential of mobile to support social development, innovation and productivity. Tunisian examples include:

- The **Najja7ni** ("Make me succeed") mobile services platform, launched by Ooredoo, provides services for improving educational and employment outcomes for youths. The initiative was originally launched in 2010 and consists of three different services. Najja7ni Education targets pupils in primary and secondary school; Najja7ni m-English aims to improve labour market outcomes for young people by providing opportunities for improving language skills; and Najja7ni Employment tries to bridge the gap between young people and the labour market by offering career guidance and training opportunities[15].

According to the International Labour Organisation (ILO) school-to-work transition survey, the official youth unemployment rate was 33.2% in 2013[16], while some of the most disadvantaged regions saw youth unemployment rates between 54% and 85% in 2012, according to the OECD[17], highlighting the importance of initiatives to improve labour market outcomes.

- **IntilaQ** is an incubation programme set up by Ooredoo, the Qatar Friendship Fund (QFF) and Microsoft to help young entrepreneurs launch ICT-related start-ups in Tunisia. The programme is worth US$ 18 million and aims to encourage entrepreneurship among young people, especially in the ICT sector[18].

- **Mdinar** is the first mobile money service in North Africa, created by Creova and launched in partnership with the Banque Internationale Arabe de Tunisie (BIAT), ENDA (a microfinance institution) and Viamobile. Mdinar offers mobile payment and m-wallet services, and allows users to send and receive money, view account balances and transactions as well as to conduct loan management services[19]. In 2015 Creova presented a partnership with Carrefour Tunisia, which will help to increase adoption of mobile money services in Tunisia[20]. According to the World Bank's Global Findex database on financial inclusion, only 27% of the population aged 15 or above had bank accounts in 2014. This implies that 73% of the population are excluded from the traditional financial system.

- **Orange Tunisia's Developers Programme** is a programme aimed at stimulating the mobile ecosystem in Tunisia by providing tools to create mobile apps. The programme is open to everyone and since its inception, 6,500 people have received training in coding, 50 apps have been produced with about 20,000 downloads on apps markets. The programme has placed over 150 developers in Tunisian and global companies[21].

- In 2014, Orange launched **Solerni, a platform for Massive Open Online Courses (MOOC)**, dedicated to promoting social learning for French speaking countries. The software allows businesses to design and build their own online learning platforms, supporting skills transfers and the knowledge economy[22].

15. GSMA, 2014. Najja7ni: Mobile learning services for improving education, English language skills and employment opportunities in Tunisia and World Bank, 2014. Tunisia: Breaking the Barriers to youth Inclusion.
16. ILO, 2014. School-to-Work Transition Survey. Micro data is available at: http://www.ilo.org/employment/areas/WCMS_234860/lang--en/index.htm.
17. OECD, 2015. Investing in youth: Tunisia: Strengthening the Employability of Youth during the Transition to a Green Economy, OECD Publishing, Paris.
18. http://www.ooredoo.com/en/news/media/news/qatar-friendship-fund-tunisia-ooredoos-company-tunisiana-microsoft-launch-intilaq-support-youth-entr.html.
19. Afribiz, 2012. Creova Launches the First Mobile Money Service in North Africa called Mdinar (press release) and StartUpArabia, 2010. Mdinar, A Tunisian Mobile Payment & M-Wallet Service.
20. Bloomberg, 2015. Creova partners with Carrefour to Extend its Mobile Money Ecosystem in Tunisia.
21. http://www.orange.com/en/content/download/23330/480379/version/3/file/Orange_2013_CSR_report.pdf. and operator data.
22. http://www.orange.com/fr/show-hello/show-hello-2014-work/Solerni and http://www.orange.com/fr/presse/Communiques/communiques-2014/Orange-lance-Solerni-sa-plate-forme-de-MOOC-Massive-Open-Online-Courses.

3. Mobile services promote long-run economic growth

A number of studies have already highlighted the economic growth potential of mobile, in particular:

- Studies by the GSMA and the World Bank have estimated that a 1% increase in mobile penetration could lead to an increase in the GDP growth rate of 0.28% in developing countries, while a 1% increase in internet user penetration in high-income countries can lead to an increase of up to 0.077% in the GDP growth rate[23].

- The World Bank has found that in developing economies, such as Tunisia, every 10% increase in broadband subscriber penetration[24] accelerates economic growth by 1.38%[25].

- A 2012 GSMA/Deloitte/Cisco study has found that the substitution from 2G to 3G connections has significant economic benefits[26]. For a given level of total mobile penetration, a 10% substitution from 2G to 3G penetration was found to increase GDP per capita growth by 0.15 percentage points. The study also found that mobile broadband usage supports growth and that this impact is larger at higher levels of usage. This means that countries with low usage like Tunisia have considerable scope for accelerating growth through increased mobile broadband usage.

- Other research suggests that for every new job created in the mobile sector in countries like Tunisia, another six are generated in the wider economy[27].

4. Mobile services support Tunisia's development objectives

Through these positive impacts, the mobile industry can support many of the government's objectives:

- The **Development Strategy for the New Tunisia** sets out the strategy for transforming Tunisia into a democratic, inclusive and competitive economy. The purpose of the strategy is to address critical issues for the country, such as lack of government transparency and accountability, regional economic disparities, unemployment, and social injustice. The strategy is centred around five axes: i) implementation of a new generation of economic and social reforms, ii) modernising infrastructure, iii) a global and balanced regional development, iv) consolidation of human and social development, and v) promoting sustainable development and proper management of natural resources.

- **Digital Tunisia 2018** seeks to make Tunisia into an "international digital reference" and fully utilise ICT for socioeconomic development. It is based on a number of strategies that aim to ensure social inclusion and bridge the digital divide, promote widespread ICT usage, develop e-government services, support employment and add value through ICT investment and innovation[28].

- The **UN sustainable development goals** (SDGs) set out to end poverty and hunger, ensure inclusive and equitable economic growth and quality education, achieve economic and gender equality, improve well-being of people of all ages and promote sustainable development. The SDGs include 17 goals[29] that were finalised and agreed upon in September 2015. The SDGs build on the UN Millennium Development Goals (MDGs) that expire at the end of 2015.

23. This is based on a study of 40 economies over the period 1996-2011; for full details of the methodology, see http://www.gsma.com/publicpolicy/wp-content/uploads/2012/11/gsma-deloitte-impact-mobile-telephony-economic-growth.pdf; Qiang, C. Z. W., Rossotto, C.M., 2009. Economic Impacts of Broadband, in Information and Communications for Development 2009: Extending Reach and Increasing Impact, World Bank, Washington D.C., 35-50.
24. The distinction between users and subscribers of telecommunications services should be noted. Users refer to individuals who do not necessarily own or pay for telecommunications services, but who have access to such services through work, family etc. Subscribers, on the other hand, are individuals who pay for subscriptions to such services, to which a number of individuals may have access. Based on ITU, 2014. Manual for measuring ICT Access and Use by Households and Individuals.
25. Qiang, C. Z. W., Rossotto, C.M., 2009.
26. GSMA/Deloitte/Cisco (2012): "What is the impact of mobile telephony on economic growth?".
27. This figure was based on a number of studies conducted in developing and developed countries; see, for example, Moretti, 2010, O2 for ONS, 2002, Ovum, 2010; Zain, Ericsson, 2009,Kaliba et al, 2006.
28. ClusMED – D2.2.2 National ICT Regulatory frameworks Report – Tunisia.
29. For the SGDs, see: https://sustainabledevelopment.un.org/sdgsproposal

The role of mobile in driving economic growth in Tunisia

Government policies	The Development Strategy for the New Tunisia	Digital Tunisia 2018	UN Sustainable Development Goals (SDGs)
Summary of policies	The development strategy sets out the strategy for transforming Tunisia into a democratic, inclusive and competitive economy. The strategy provide guidelines to address structural issues in Tunisia. It is based on 5 axes: I. Implementation of a new generation of economic and social reforms II. Modernizing infrastructure III. Global and balanced regional development IV. Consolidation of the human and social development V. Promoting sustainable development and proper management of natural resources	Digital Tunisia 2018 seeks to make Tunisia into an international digital reference that fully utilises ICT for socio-economic development. It is based on a number of strategic axes, summarised below: I. Ensuring social inclusion and bridging the digital divide II. Implement digital culture by widespread use of ICT in educational curricula and content digitization and move towards e-Government III. Support employment and added value through ICT investment and innovation	End poverty and hunger, ensure inclusive and equitable economic growth and quality education, achieve economic and gender equality and improve well-being. The 17 SDGs were finalised and agreed upon in September 2015.

MOBILE CAN SUPPORT THESE OBJECTIVES

Benefits of mobile services	Promote digitalisation and the growth of knowledge-based economy	Enhance productivity, innovation, and social development	Promote long-run economic growth	Promote economic growth and enhance productivity and social cohesion	The development of e-government	Support e-health	Education
How mobile can help	By providing access to learning resources and fostering information sharing, mobile access can promote primary and secondary education and increase literacy rates	By supporting a large ecosystem of industries and small businesses, mobile services improve labour and capital productivity, thus contributing to increase economic growth, decrease poverty and foster investment	Increased broadband access promotes job creation, economic growth and innovation	Mobile services and m-Government initiatives contribute to administration efficiency at local and national government levels, improving ease of doing business and making FDI more attractive	Increased access to information promotes better health education and health outcomes		

Source: Tunisian government and Deloitte

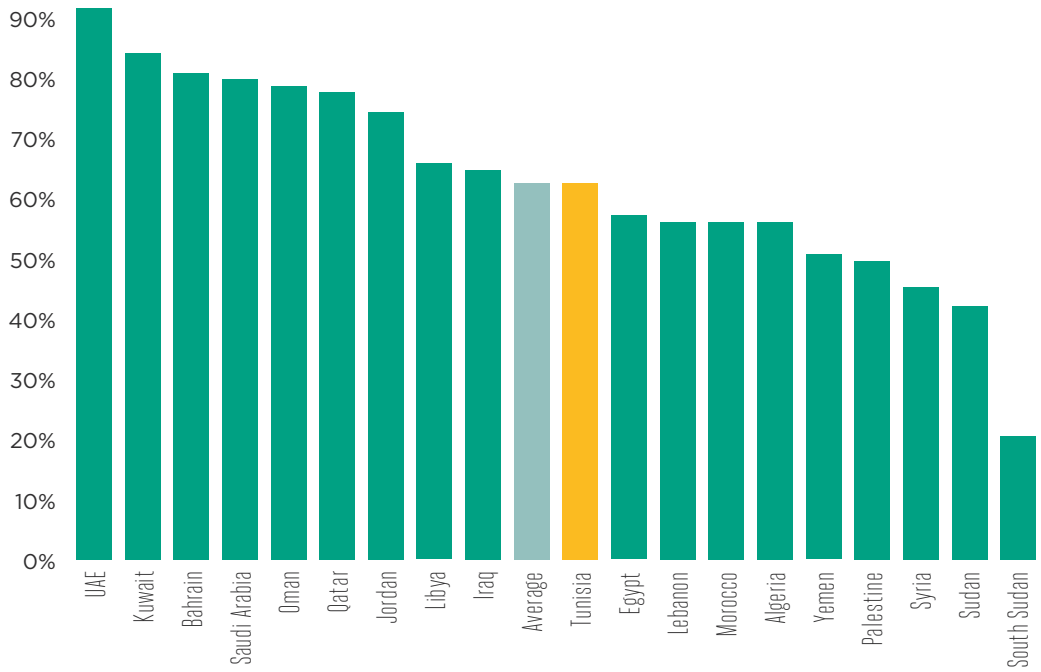
Figure 9

1.3 Current gaps in digital inclusion

Mobile makes an important contribution to socioeconomic development in Tunisia and to the achievement of the government's development plan. Despite the increased digital inclusion that mobile has enabled, gaps in access to and availability of mobile services, including the mobile internet, remain:

A large share of the population still does not have access to mobile services. 42% of the population, around 4.6 million people, do not own a mobile phone, leaving a large share of the population without access to the benefits of mobile services. While the mobile penetration rate in terms of unique subscribers[30] is relatively high compared to neighbouring countries, Tunisia is behind a number of other Arab states. In particular, the penetration rate in Tunisia is lower than in both Libya and Iraq, two countries that are experiencing armed conflict and political instability.

Unique subscriber mobile penetration in Arab States, Q2 2015



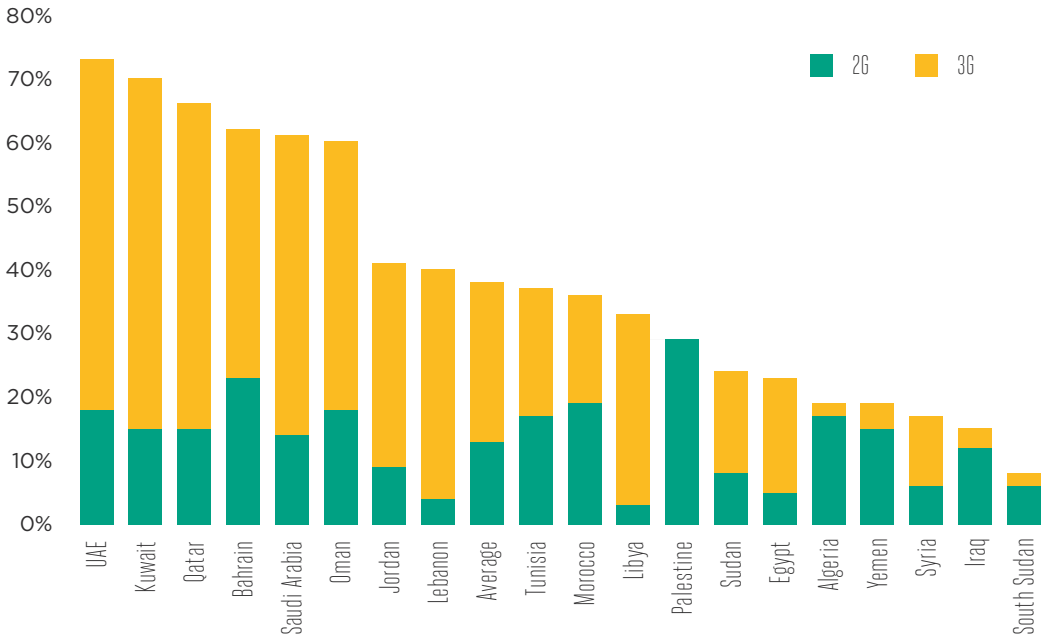
Source: GSMA Intelligence database

Figure 10

30. Unique subscribers refer to the number of individuals who have subscribed to a mobile services. This is distinct from the number of mobile connections. The mobile penetration rate measures the total subscribers as a share of the total population.

Few Tunisians have access to mobile internet services. Only 37% of the population have access to the mobile internet, which is below the average for Arab states, and well behind regional leaders Kuwait and Qatar that have mobile internet penetration rates[31] of 73% and 70%, respectively. Despite 3G coverage of 95% of the population[32], 3G mobile internet penetration is relatively low at 20%. Other countries such as Jordan and Lebanon have similar levels of mobile internet penetration, but with higher 3G penetration than Tunisia. The limited access to the mobile internet, including high-speed mobile internet, may mean that many Tunisians are missing out on the services and economic benefits enabled by the mobile internet.

Mobile internet unique subscriber penetration in a selection of Arab States, Q2 2015[33]



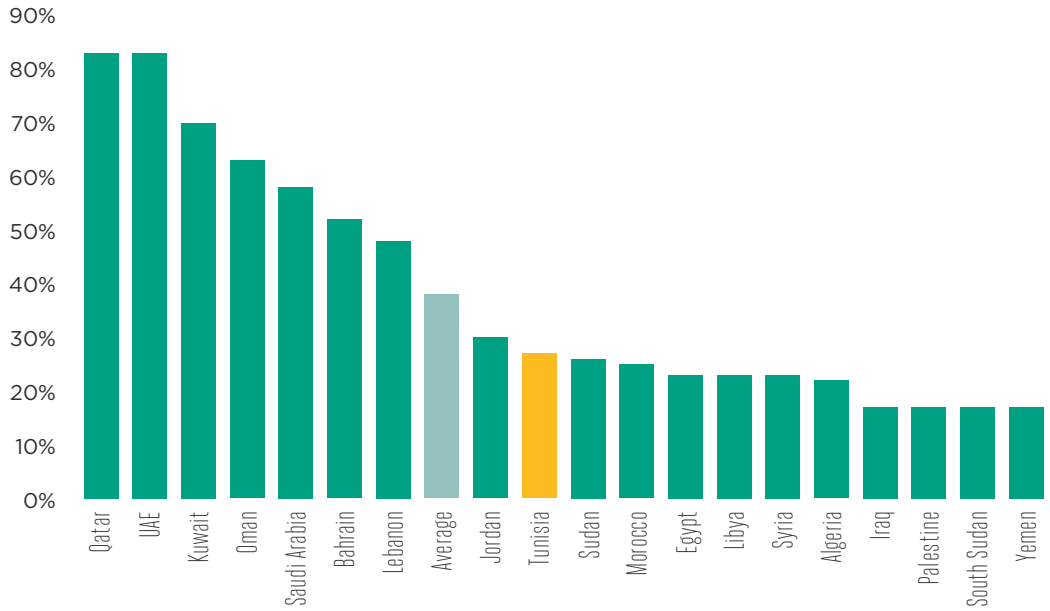
Source: GSMA Intelligence database

Figure 11

Smartphone adoption is lagging behind. While the rate of smartphone adoption has been rapid since 2007, the smartphone share of total connections in Tunisia is still currently at 27%, below the regional average of 38% and well below Qatar and the United Arab Emirates that both have adoption rates of 83%. This helps explain the relatively low uptake of 3G in Tunisia compared to regional peers. Improving device and services affordability, which may particularly be an issue for poorer households, could support greater smartphone adoption in Tunisia. Affordability can be significantly affected by taxation.

31. Mobile internet penetration rate refers to the total subscribers of the mobile internet, expressed as a percentage of the total population.
32. GSMA Intelligence database.
33. Political issues affect spectrum allocation in Palestine and 3G services have not been launched.

Smartphone share of total connections in Arab states, Q2 2015



Source: GSMA Intelligence database

Figure 12

Regional disparities exclude people in marginalised areas from the benefits of mobile. Even though mobile coverage as a percentage of the population is high, there are still large rural areas that are not covered by mobile network services. According to the ITU, only 50% of the rural population was covered by 3G mobile network in 2011-2012[34].

Access gaps are aggravated by income inequality and affordability issues. There are large regional economic disparities. The World Bank has estimated that in 2010, poverty rates in the Centre-East region and grand Tunis region ranged around 8-9%, while the poverty rate was 26% and 32% in the North-West and Centre-West regions, respectively[35]. A representative household in the lowest 40% income bracket would need to spend about 44% of its disposable income to afford mobile internet services, and the burden would be even greater for those in certain regions[36]. This may create a digital divide between different regions of the country and limit widespread mobile uptake.

There is considerable potential for growth in the uptake of mobile services in Tunisia, in particular for the mobile internet. To realise the full benefits of mobile services and to promote sustainable and long-term economic growth, further steps could be taken to promote digital inclusion and extend access to mobile services, including the mobile internet, to the wider population.

While the Development Strategy for the New Tunisia and Digital Tunisia 2018 are ambitious strategies to improve the state of the economy and digital inclusion in Tunisia, the issue of mobile-specific taxation has not been addressed. Previous Deloitte studies on mobile taxation in other countries suggest that increased taxation may negatively impact mobile penetration, as poorer segments of the market may be priced out of the market[37]. Promoting greater penetration of mobile services would have positive impacts on the wider economy: increased mobile penetration and data usage has been demonstrated to have positive effects on economies and the growth rate of GDP per capita[38].

34. ITU, 2014. Measuring the Information Society Report 2014.
35. World Bank, 2015. Tunisia: Systematic Country Diagnostic.
36. World Bank, 2015. Tunisia: Systematic Country Diagnostic.
37. Deloitte, 2012. Mobile Telephony and Taxation in Latin America.
38. See GSMA/Deloitte/Cisco (2012): "What is the impact of mobile telephony on economic growth?" It is estimated that a 10% substitution from 2G to 3G penetration increases GDP per capita growth by 0.65% for Tunisia, and a doubling in data usage per user would increase GDP per capita growth by 0.36%.

42% of Tunisians, around 4.6 million people, do not own a mobile phone and only 37% have access to the internet

1.4 Assessing the impact of taxation on digital inclusion in Tunisia

The rest of this report assesses how mobile taxation impacts on digital inclusion and how addressing mobile-specific taxation could complement the government's development goals. The analysis utilises an economic model of the Tunisian mobile sector and economy to examine a number of options for the government to transition to a tax structure where mobile is taxed equally to other goods, in a way that promotes economic growth and protects the government's tax revenue position in the medium and long term.

- Section 2 describes the taxes levied on the mobile sector in Tunisia, the implications of these taxes for the mobile sector and the wider economy, and discusses the economic and regulatory environment in Tunisia. It also compares the taxes levied in Tunisia with international benchmarks and with best practice on taxation principles as recommended by leading international organisations.

- Section 3 considers effective alternatives for rebalancing taxes on the mobile sector. These policies can support the Tunisian government's ICT goals, while increasing economic growth and productivity.

- Section 4 concludes, illustrating the contribution to fiscal stability of the policies presented in Section 3 and presents guidelines to align mobile taxation to standard goods taxation.

- The Appendix describes the economic model of the Tunisian mobile sector and economy that has been used in the analysis to estimate the impacts of rebalancing mobile sector taxes.

2. Taxation on the mobile sector in Tunisia

The Tunisian mobile sector is subject to a number of taxes levied both on operators and consumers. The extent to which these charges ultimately fall on operators or consumers depends on the type of tax and market conditions. Some taxes and fees may be absorbed by operators in the form of lower profits, whilst others may be passed through to consumers through higher prices, or there may be a combination of the two.

This section reviews the taxes applied to mobile consumers and operators in Tunisia, focusing on those that are mobile-specific, i.e. those which do not apply to other goods and services in the economy. It also compares the mobile taxation system in Tunisia with similar countries.

2.1 Taxes on mobile consumers in Tunisia

Consumer taxes in Tunisia apply to devices, calls and SMS, connections, the mobile internet, mobile money, roaming, as well as 3G dongles and tablets, and SMS games revenue.

In addition to standard VAT taxation, mobile services are subject to a mobile-specific industry fee applied *ad valorem* on the value of both wholesale and retail mobile services and on the sale of 3G devices.

Summary of taxes and fees levied on the mobile consumers in Tunisia

Consumer taxes		
Payment base	**Type**	**Tax rate**
Devices	VAT	18%
3G dongles	VAT	12%
Tablets	VAT	6%
Calls, SMS, MMS, data, international and national interconnection, mobile money, roaming and sales of 3G devices	VAT	18%
	★ Industry fee	5%
	Stamp duty	10%
SMS Games revenue	Special tax	30%

★ Mobile specific tax

Source: IBFD and mobile operator data

Table 2

The VAT on mobile devices and services

There are three different VAT rates in Tunisia that apply on goods and services; the standard rate is 18% and there are two reduced rates of 12% and 6%[39]. All mobile services, including calls, SMS, roaming, mobile money and mobile broadband, and devices are subject to the standard VAT rate of 18%. Fixed-line ADSL broadband, however, is taxed at the lower rate of 12%[40]. 3G dongles are subject to the 12% rate while tablets are subject to the rate of 6%.

VAT is levied in Tunisian consumers who use their phones to roam internationally and on the interconnection of international calls. This appears misaligned with international experience, as international roaming is typically treated as exports and is exempt from VAT. For example, in the UK, VAT has not been applied on roaming outside of the EU since 1992[41].

The stamp duty on mobile devices and services

A stamp duty of 10% is levied on invoices for mobile services, such as post-paid bills and the sale of recharge cards. Prior to 2012, post-paid bills were subject to a fixed stamp duty of TND 0.3 (US$ 0.17) per invoice. In 2012, the rate was changed to an *ad valorem* rate of 8% of the value of the invoice, and this rate was increased to 10% in 2014.

The industry fee tax on mobile services

A mobile-specific tax is applied to mobile calls, SMS, MMS, data, international and national interconnection, mobile money, and roaming. The industry fee is also levied on the sales of 3G devices. The industry fee is applied on top of other taxes and fees, such as VAT, and without deducting for interconnection costs. In several other Arab states, such as Iraq, Oman, and Palestine, royalty fees, are applied on the net revenues, i.e. gross revenues net of interconnection costs and without including VAT payments[42].

The fee is levied on both mobile calls and national interconnection services[43], which could potentially constitute double taxation on mobile services. Like the VAT, the industry fee is levied on international roaming of Tunisian consumers, which is misaligned with international experience. The industry fee was reduced from 15% to 5% in 2002[44]. The industry fee tax could have distortive effects by:

- Potentially adding to the final prices of mobile services and 3G devices, creating affordability barriers that may constrain usage and take-up of new services such as the mobile internet.
- Taxes on consumers can be particularly distortionary when they are sector-specific, as is the case of the industry fee, in contrast with broad-based taxes.
- Potentially reducing the incentives for network investment, as the industry fee may be absorbed by operators, which reduces the capital available for investment.

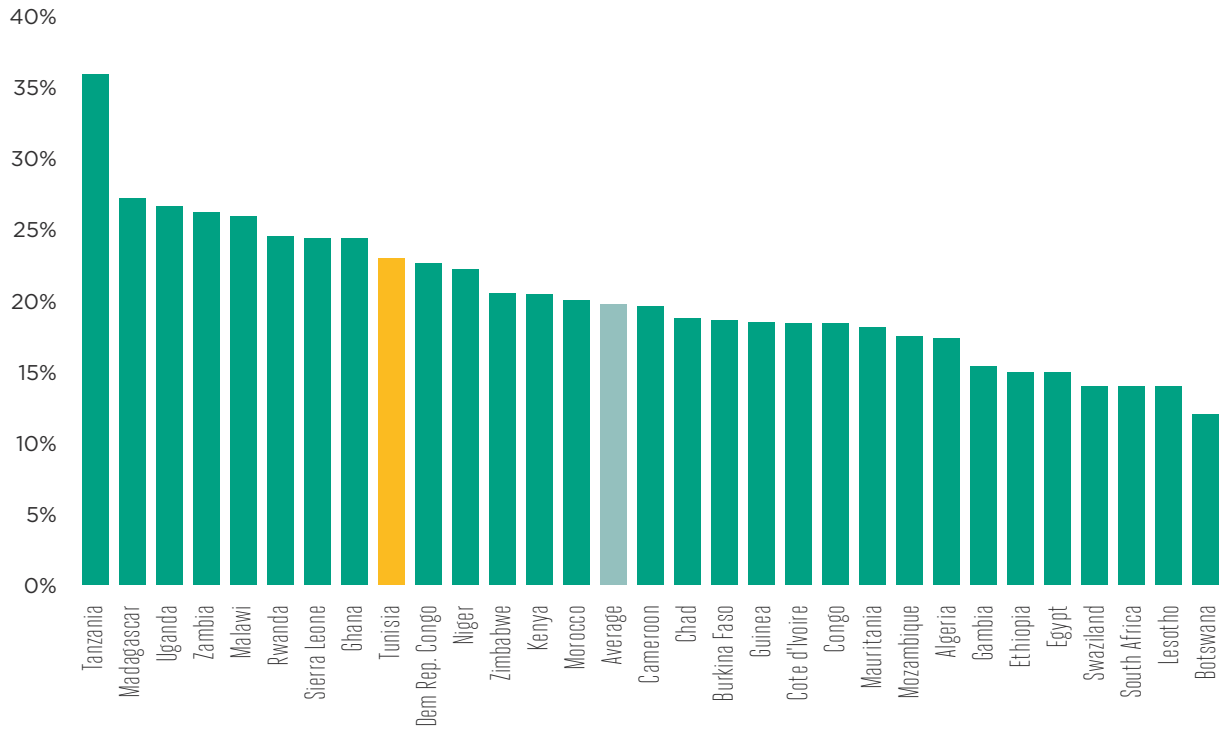
The Special tax on SMS games revenue

A special tax is levied on the revenues from SMS games in Tunisia. The tax was introduced in 2009 and is levied at 30% of the price of participation in SMS games and 30% of the price per minute for voice-operated games[45].

Taxation in Tunisia accounts for a significant proportion of the total cost of purchasing and using a mobile phone for the average consumer. A previous study has found that total taxes on consumers, including VAT, the royalty tax and the stamp duty, accounted for 23% of the Total Cost of Mobile Ownership (TCMO)[46] in Tunisia in 2014[47], above the average of 20% across other African countries in the sample. Due to the limited availability of data for Arab states, Tunisia is compared to African countries.

39. PKF, 2014. Worldwide Tax Guide.
40. Operator data.
41. http://www.moneysavingexpert.com/news/phones/2015/01/ee-refunds-1m-after-mistakenly-charging-vat-on-non-eu-data.
42. http://www.impots.finances.gov.tn/documentation/notes_communes_fr/nc13_2003_fr.pdf.
43. Operator data.
44. http://www.impots.finances.gov.tn/documentation/notes_communes_fr/nc13_2003_fr.pdf.
45. http://www.madwatch.net/tunisie-une-taxe-pour-les-jeux-par-sms-et-par-telephone/.
46. TCMO is a measure of average annual cost of mobile ownership. The cost includes spend on rental, calls, SMS, data and handset and connection costs. Data on average rental, calls, SMS, data and handset and connection costs for both pre-pay and post-pay consumers were used to calculate the TCMO. The taxation as a share of TCMO figure measures the share that direct consumer taxation accounts for in the final prices of mobile services for consumers. The figure was calculated by compiling tax rates applicable on mobile telephony. The taxes included in Tunisia were the VAT and industry fee on mobile services and 3G devices.
47. GSMA/Deloitte, Digital Inclusion and Mobile Sector Taxation, 2015.

Tax as a percentage of TCMO in selected African countries with available data, 2013



Source: Deloitte analysis based Tunisian operator data for 2014 and GSMA/Deloitte (2015): "Digital inclusion and mobile sector taxation", which uses 2013 data

Figure 13

2.2 Taxes on mobile operators in Tunisia

Operators in Tunisia are subject to general taxes such as the corporation tax, VAT on imported network equipment, a local tax, a registration fee and payroll taxes. Additionally, operators are subject to various regulatory fees, including both annual and non-recurring fees.

Summary of taxes and fees levied on the mobile operators in Tunisia

Operator taxes		
Payment base	**Type**	**Tax rate**
Imported network equipment, SIM cards and vouchers	VAT	18%
Contract value	Registration fee	0.5%
Profits	★ Corporation tax	35%
Gross revenues	Tax for local authorities	0.2%
Gross income	Tax on Vocational Training (TFP)	2%
	Tax for the benefit of the Housing Promotion Fund for employees (FOPROLOS)	1%
Regulatory fees	★ Annual licence fee	TND 3 million (US$ 1.7 million) per year
	☆ Numbering fee	The rate depends on the number and price of blocks of mobile numbers.
	★ Annual spectrum fee	The rate is set by the Ministry of Communication Technologies and Digital Economy (Mincom)
	★ Spectrum acquisition fee	Determined by award process

★ Mobile specific tax ☆ Telecom-specific tax

Source: IBFD and mobile operator data

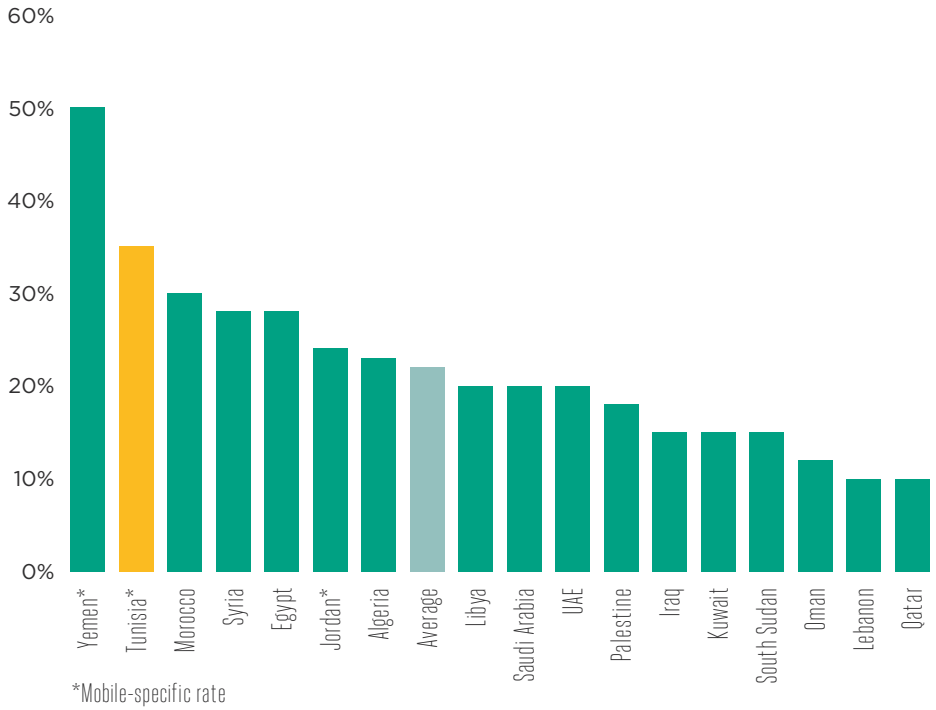
Table 3

General taxation on mobile operators

- A corporation tax is applied on the income of Tunisian resident companies. The standard corporation tax rate is 25%, following tax rate reductions of 5% in 2007 and again in 2015[48]. The mobile sector however, together with financial institutions and hydrocarbon companies, is subject to a 35% corporation income tax[49]. This corporation tax rate is the fourth highest levied on mobile operators among the Arab states.

48. Operator data.
49. IBFD.

Corporation tax rates in the Arab states with available data, 2015



Source: Deloitte analysis on IBFD data

Figure 14

- Mobile operators also pay VAT at the rate of 18% on imported network equipment, SIM cards and vouchers.

- A tax by local authorities is levied at 0.2% on gross revenues. This tax payment was previously capped at TND 100,000 (US$ 56,000) annually. The cap was abolished by the Article 50 of the law of supplementary budget in 2012[50].

- A registration fee is levied on the contract value of any market or concession contracts. Previously the rate was set at TND 20 (US$ 11) per page of the contract, with a maximum payment of 2% of the gross value of the market or concession. In 2013, the fixed fee was replaced by an *ad valorem* fee of 0.5% of the gross value of the market or concession[51].

- In addition, mobile operators pay a tax on vocational training (TFP) at a rate of 2% of gross payroll and a tax to support the housing promotion fund for employees (FOPROLOS) set at 1% of gross payroll[52].

Mobile-specific fees on mobile operators

Operators pay a number of different regulatory fees to Mincom, the National Telecommunications Authority (INT) and the National Frequencies Agency (ANF), which include both recurring and non-recurring spectrum and licence fees.

Recurring spectrum and licence fees

Mobile operators are subject to recurring spectrum fees paid as a flat fee annually, which represent a significant part of operators' payments. These are intended to cover the costs of spectrum management and ensure the efficient use of spectrum[53]. The fee is set by Mincom and the payment is made to ANF.

Mobile operators also pay an annual numbering fee. The fee is determined by the number and price of blocks of numbers and is paid to the INT[54]. In 2014, mobile operators are estimated to have paid over TND 42 million (US$ 24 million) in annual spectrum and numbering fees, circa 5% of all taxes and fees paid[55]. Mobile operators also pay annual licence fees, which amount to TND 3 million (US$ 1.7 million) per year.

50. Operator data.
51. Operator data.
52. Operator data.
53. ITU, ICT Regulation Toolkit, http://www.ictregulationtoolkit.org/5.5.
54. Operator data.
55. Deloitte analysis based on operator data.

Non-recurring spectrum and licence fees

In addition to annual fees, operators pay non-recurring fees for licences to provide services and acquire spectrum. Between 2009 and 2012, operators paid a combined amount of circa TND 574 million[56] for licences. In 2013, operators paid TND 22.5 million (US$ 13 million) as non-recurring spectrum fees[57].

Total recurring mobile tax and fee payments in Tunisia

As a result of these taxes and fees, the total recurring payments paid by Tunisian operators and consumers represented 37% of market revenues in 2014. This excludes the one-off fees that mobile operators paid for spectrum and licences in order to provide services; if these were included, the total tax burden would be even higher.

2.3 Other taxation barriers in Tunisia

Tunisia is a country with great economic potential, but a number of structural issues have limited the economic performance of the country[58]. The export sector has received favourable treatment: fully exporting firms are exempt from taxation on income and profit for 10 years, with a 50% reduction the following 10 years and a permanent full tax deduction for reinvested profits thereafter[59]. When the period of deduction has expired, benefits from exports are subject to a corporation tax rate of 10%[60]. Competition in the domestic sector, on the other hand, has been affected by strict regulations and entry barriers[61]. Over 50% of the economy is subject to investment and entry restrictions [62]. Specifically for the mobile sector, investment in telecoms, which are part of domestic industries, is restricted for foreigners and subject to the approval of the relevant ministries[63].

When reviewing the challenges and opportunities for the Tunisian economy, the World Bank recommended the simplification of both the incentives regime and the tax regime[64]. The World Bank noted that the tax system in Tunisia is both complex and unclear, with high compliance costs for businesses and increased risk of tax evasion[65]. The cost of compliance with regulations is equivalent to a 13% tax on the revenues of Tunisian firms, making Tunisia one of the most costly environments in the MENA-region[66].

The World Bank's *Paying Taxes* international study is designed to evaluate the burden of taxation on a representative medium-sized firm, in terms of the total tax rates (measured as the amount of taxes and mandatory contributions borne by the firm as a share of profits), time to comply (measured as the time taken to prepare, file and pay corporate income tax, value added or sales tax, and labour taxes), and the number of payments (measured as the total number of taxes and contributions paid) required to comply with tax regulations.

The study found that the total tax rate in Tunisia is considerably higher than the African average as well as that of any other regions. On the other hand, the time required to comply with tax regulations, and the number of tax payments are relatively low and below the regional average. There are, however, indications of significant discretion and arbitration in the implementation of rules, which is, in practice, unpredictable, time consuming and costly to firms[67].

56. Equivalent to circa US$ 338 million.
57. Operator data.
58. World Bank, 2014. The Unfinished Revolution: Bringing opportunity, good jobs, and greater wealth to all Tunisians.
59. World Bank, 2014. The Unfinished Revolution: Bringing opportunity, good jobs, and greater wealth to all Tunisians.
60. Operator data.
61. World Bank, 2014. The Unfinished Revolution: Bringing opportunity, good jobs, and greater wealth to all Tunisians.
62. World Bank, 2015. Tunisia: Systematic Country Diagnostic.
63. World Bank, 2014. The Unfinished Revolution: Bringing opportunity, good jobs, and greater wealth to all Tunisians.
64. World Bank, 2015. Tunisia: Systematic Country Diagnostic.
65. World Bank, 2015. Tunisia: Systematic Country Diagnostic.
66. World Bank, 2014. The Unfinished Revolution: Bringing opportunity, good jobs, and greater wealth to all Tunisians.
67. World Bank, 2014. The Unfinished Revolution: Bringing opportunity, good jobs, and greater wealth to all Tunisians.

Total recurring payments made by Tunisian mobile operators and consumers represented 37% of market revenues in 2014

Measures on the ease of paying taxes in Tunisia and regional averages, 2015

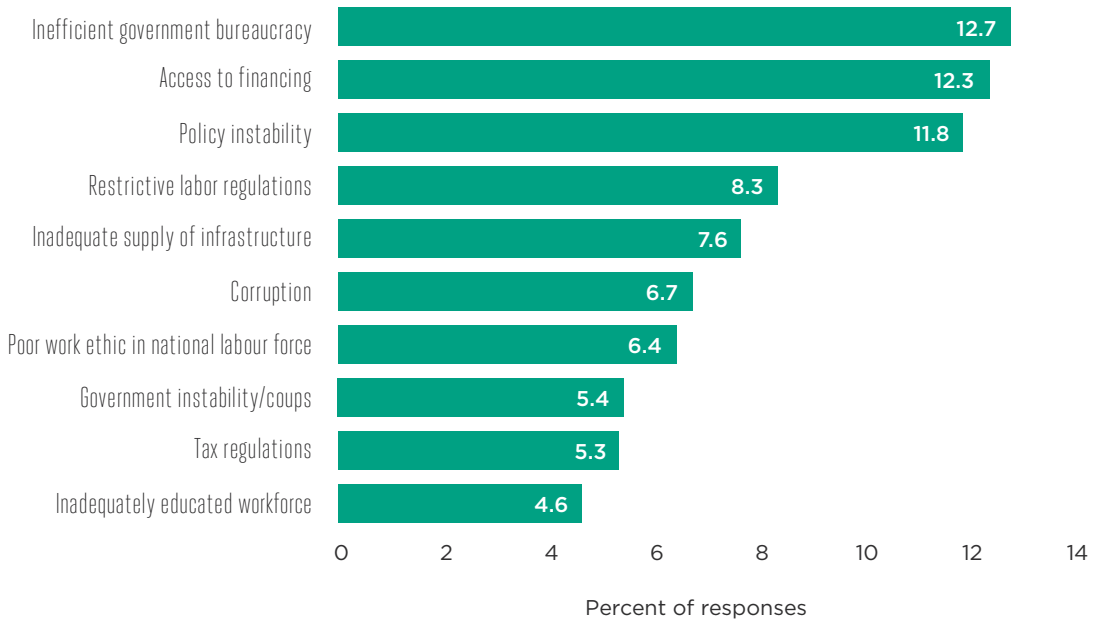
	Country	Total tax rate (%)	Time to comply (hours)	Number of payments
	Tunisia	62%	144	8
Regional Average	South America	55%	620	23.7
	Africa	47%	317	36.2
	Central Asia & Eastern Europe	35%	245	23.3
	Asia Pacific	36%	229	25.4
	North America	39%	213	8.2
	Central America & the Caribbean	43%	211	33.8
	EU & EFTA	41%	176	12.3
	Middle East	24%	160	16.8

Source: World Bank, "Paying taxes" 2015

Table 4

When surveying the most problematic factors facing businesses in Tunisia, the World Economic Forum (WEF) found that inefficient government bureaucracy and tax regulations all rank in the top 10 most problematic factors.

The most problematic factors for doing business, Tunisia



Source: World Economic Forum, "The Global Competitiveness Report 2014-2015"

Figure 15

Excessive taxation and regulatory burden may hamper investment in mobile infrastructure

Regulatory and tax administration issues raise costs for mobile operators in Tunisia. To fully comply with tax regulations, mobile operators have to divert more resources or staff to handle tax affairs than otherwise would be necessary.

Tax issues and policies that discourage investment in the domestic sector, may reduce the investment attractiveness of the mobile sector. This may discourage network investment and delay 3G network rollout in uncovered areas. Further network investment, especially in rural and inland regions, is critical in bridging the digital divide between regions and extending the benefits of the mobile internet to a large share of the population.

2.4 Best practice in taxation policy

An effective tax policy has to balance a number of potentially competing factors. These include the government's revenue needs, supporting key sectors and the practicalities of enforcement and collection, as well as the desire to minimise any detrimental impact on the wider economy. Consequently tax policy frequently must strike a balance between the theoretically correct response and one that recognises the practicalities of taxation in a market[68].

There are a number of principles that are generally recognised as contributing to an effective tax system, as outlined by international organisations such as the IMF and ITU[69]. These principles are intended to minimise the inefficiencies associated with taxation and regulatory fees and the distortive impacts that they may have on the wider economy. If applied in Tunisia, these principles have the potential to promote mobile penetration and expand investment in the mobile sector, promoting economic growth and increased tax revenues for the government.

68. IMF, Tax policy for developing countries, 2001.
69. See IMF, Tax policy for developing countries, 2001. And ITU, ICT regulation toolkit, 2014. And ITU, ICT Regulation Toolkit, http://www.ictregulationtoolkit.org/5.5.

Principles of taxation

1. In general, taxation should be broad based	**Mobile-specific taxes such as the industry fee may lead to inefficiently low consumption and investment in the mobile sector.** • The 5% industry fee is levied on the usage of mobile services and sales of 3G devices and may create distortions in consumers' purchasing decisions.
2. Taxes should account for sector and product externalities	**All mobile-specific taxes and fees fail to account for positive externalities and discourage consumption.** • In addition to the industry fee, mobile is subject to a number of sector-specific regulatory fees even though the sector generates positive impacts in the wider economy through spillover effects. Taxing mobile in a disproportionate manner could be taken as a signal that the government wishes to discourage rather than encourage consumption.
3. The tax system should be simple, understandable and enforceable	**Uncertainty and lack of transparency over taxation systems may discourage investment and increase enforcement costs for the government.** • Taxation in Tunisia is marked by unpredictability and discretionary implementation of rules resulting in high compliance costs for businesses. The taxation burden on the mobile sector has increased in recent years due to increases in the stamp duty, the registration fee and the tax for local authorities.
4. Incentives for competition and investment should be unaffected	**Higher taxes on a given industry compared to other sectors reduce the incentives for investment in the industry, both domestically and internationally and could reduce investment in infrastructure and quality of service improvements.** • The mobile sector is subject to a mobile-specific corporation tax rate of 35% compared 25% for standard goods and services.
5. Taxes should not be regressive	**Mobile-specific taxes such as the royalty fee increase barriers to access and hit the poorest consumers hardest.** • Mobile-specific taxation such as the industry fee on mobile services and sales of 3G devices increase the final price of mobile services and risk creating a barrier to affordability and mobile access. The barrier is greater for low income consumers and therefore risk excluding them from the benefits of mobile and internet.
6. Spectrum prices and other regulatory fees should cover the cost of spectrum management and reflect the rent associated with this scarce resource	**The incentive to invest should be maintained by appropriately incorporating all costs incurred during the duration of a licence, including taxes, while maximising the economic benefits to society.** • Increased taxation erode the value of spectrum and reduces incentives to invest. Taxes have been raised following spectrum auctions and mobile operators pay higher corporation taxes than standard. from the benefits of mobile and internet.

Source: Deloitte analysis based on IMF, Tax policy for developing countries, 2001, and ITU, ICT regulation toolkit, 2014

Table 5

As shown in the table above, many of the taxes levied on the mobile sector in Tunisia do not appear to fully align with these key principles of efficient taxation, which has ramifications for the development of the sector and the wider economy. In particular, those taxes that are mobile-specific have the highest negative impact and lack of alignment with the established principles of taxation:

Mobile-specific taxes such as the industry fee tax increase barriers to access and hit the poorest consumers hardest: Tunisian mobile consumers are subject to mobile-specific taxes, in the form of the industry fee on calls, SMS, connections, roaming, the mobile internet, mobile money and sales of 3G devices. This tax is not broad-based as it is specific to the consumption of mobile services and sales, which may distort consumer's purchasing decisions. By potentially increasing the final price of mobile services, it creates a barrier to affordability and to mobile access. This barrier is greater for low income consumers and therefore risks excluding them from the benefits of mobile and the internet.

All mobile-specific taxes and fees fail to account for positive externalities and discourage consumption: In addition to the industry fee, mobile is subject to a number of sector-specific regulatory fees. Mobile has positive impacts on the wider economy through positive spillover effects and facilitation of innovation and productivity in other sectors such as agriculture, healthcare and education. Furthermore, higher taxation on goods and services is typically applied by governments on goods such as alcohol and tobacco, which are recognised to provide certain negative externalities on societies, and of which governments seek to discourage consumption. Taxing mobile in a disproportionate manner could be taken as a signal that the government wishes to discourage rather than encourage consumption.

High spectrum and other regulatory fees could distort operators' investment decisions: Regulatory fees represent a significant part of operators' tax and fee payments and are a key determinant of investment in the sector. Excessive spectrum payments and other regulatory fees could negatively affect the roll-out of network infrastructure[70], through reduced incentives to invest due to lower returns on the capital employed, increased uncertainty on future tax liability, which is also likely to impact investment decisions, distortions across industries and within the ICT sector due to higher costs for mobile operators, further driving (local and foreign) investment away from mobile.

Fees that are subject to frequent changes increase uncertainty and discourage investment both domestically and internationally. When a licence or spectrum band is awarded, the final price paid reflects operators' expectations on future cash flows, including tax disbursements, at the time the investment decision is made. If new taxes are introduced or increased after the award process or during the duration of a licence, this negatively impacts the operators' business case and can have adverse effects on consumers if some operators were to hold off investment due to taxation uncertainty. In Tunisia, after significant investment incurred to acquire 3G licences between 2009 and 2012, operators saw increases in the stamp duty in 2012 and 2014, the registration fee in 2013 and the tax for local authorities in 2014[71].

Efficient, equitable and stable pricing of spectrum and licence fees has the potential to support government revenues while ensuring the development of new technologies and encouraging mobile operators to invest in new spectrum and network roll-out. Appropriate pricing of spectrum appears a key issue if Tunisia is to embrace further uptake of mobile broadband services.

70. Gorecki, Hennessy, Lyons, How impact fees and local planning regulation can influence deployment of telecoms infrastructure, 2011.
71. See section 2 for a description of the tax increases.

Moreover, fees that are subject to frequent changes increase uncertainty and discourage investment both domestically and internationally. Efficient, equitable and stable pricing of spectrum and licence fees could incentivise the development of new technologies and encourage mobile operators to invest in new spectrum and network roll-out.

Mobile-specific corporation tax diminishes incentives for competition and investment. The mobile sector has not benefitted from the decreases in the corporation tax rate that apply to other sectors. Thus, the relative corporation tax burden of the mobile sector has increased, which may put the industry at a competitive disadvantage relative to other industries.

The potential inefficiencies created by these various mobile taxation issues may not only limit the development of the mobile sector, but also hinder economic growth and the realisation of the positive externalities created by mobile services. In the medium and long term, the Tunisian government has the potential to generate more tax revenue by complementing the wider economic reforms that are currently being implemented with a transition towards a more equitable and balanced taxation structure that treats mobile equally to other industries.

3. Economic impacts of reforming mobile taxation in Tunisia

This section discusses the impacts of reforming taxation through three tax policy changes, using a combination of qualitative evidence and a quantitative model of the mobile sector and its impact on the wider economy in Tunisia.

Following discussions with Tunisian operators and the discussion of the alignment towards international best practice of taxation, three model scenarios were estimated. It was identified that the industry fee could constrain the uptake of mobile services and add to the barriers to digital inclusion discussed in section 1.3. In addition, taxation on international incoming calls, in combination with the highest international call prices among Arab states, could discourage international communications and limit Tunisia's international integration.

The quantitative impacts for the following alternatives of tax reform are estimated:

- Eliminating the industry fee on all mobile services and sales.
- Eliminating the industry fee on national interconnection services.
- Eliminating the VAT and the industry fee on international incoming calls.

3.1 How mobile taxation in Tunisia impacts the economy

The industry fee and the regulatory fees are mobile-specific taxes that increase the price of goods and services and may thus limit the uptake of mobile services. This puts the mobile sector at a disadvantage in respect to other industries, potentially reducing investment and digital inclusion, while failing to recognise the positive spillovers generated by mobile.

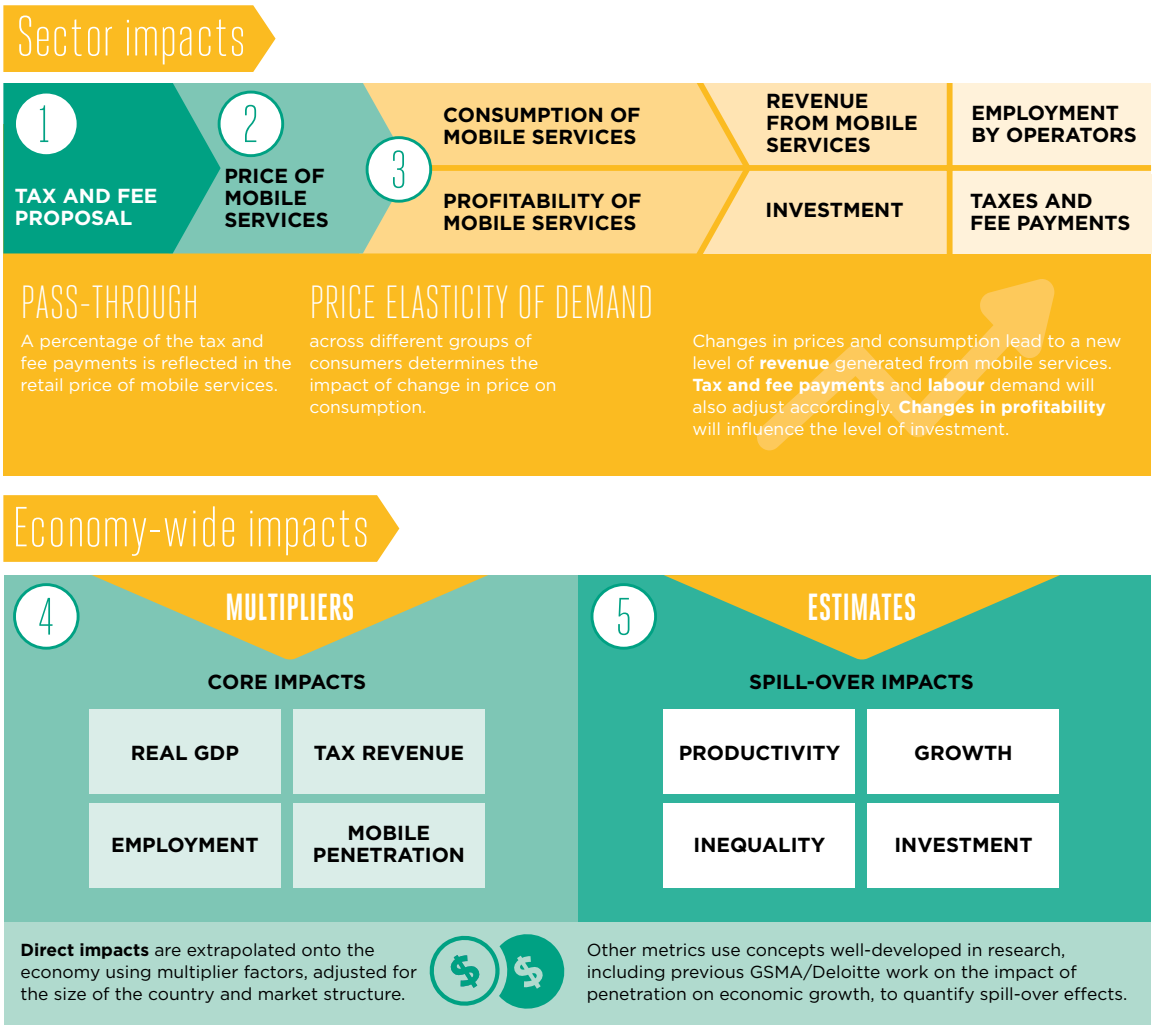
By reforming mobile taxation and transitioning to a more balanced taxation structure where mobile is taxed equally to standard goods and services, the government of Tunisia can promote the agenda of the Development Strategy for the New Tunisia and the Digital Tunisia 2018 and move towards an inclusive, knowledge-based competitive economy, while potentially benefitting from increased tax revenues in the medium term as a result of GDP growth.

To estimate the quantitative impacts of tax reform, an economic model of the Tunisian economy and mobile sector was constructed, using sector-specific data from the GSMA and mobile operators in Tunisia, together with

macroeconomic data from the IMF and the World Bank. This allows the model to represent both the mobile sector and its impacts on the economy as a whole. This approach also enables comparison between a base case that uses current projections for the sector and several tax reduction scenarios; other potential impacts on the sector that may arise from the government's current reform programme are not explicitly modelled but may have been considered in projections by the GSMA or third party sources and, if so, would be taken into account in the base case. The policy reform scenarios were estimated separately and their interactions are not considered.

The figure below illustrates the impacts of tax reform on key economic and sector variables.

Schematics for modelling the economic impacts of mobile taxation changes



Source: Deloitte analysis

Figure 16

The modelling involves several steps which encompass the impacts outlined in figure 16:

1. The levies, fees, and royalties applied to the mobile sector are reflected in the retail prices mobile operators charge for using their services. A reduction of such payments to government will lead to a reduction in the retail price of the mobile service according to an assumed pass-through rate. A pass-through rate represents what percentage of the levy and fee payments are reflected in the retail price of mobile services.

2. The price of mobile services determines the demand and therefore the aggregate consumption of mobile services. The price elasticity of demand describes the responsiveness of demand to a change in the price and is calculated as the percentage change in demand resulting from a given percentage change in price.

3. Changes in the level of consumption of mobile services lead to a new level of revenue generated by operators, which changes the level of taxes and fee payments and labour demand accordingly.

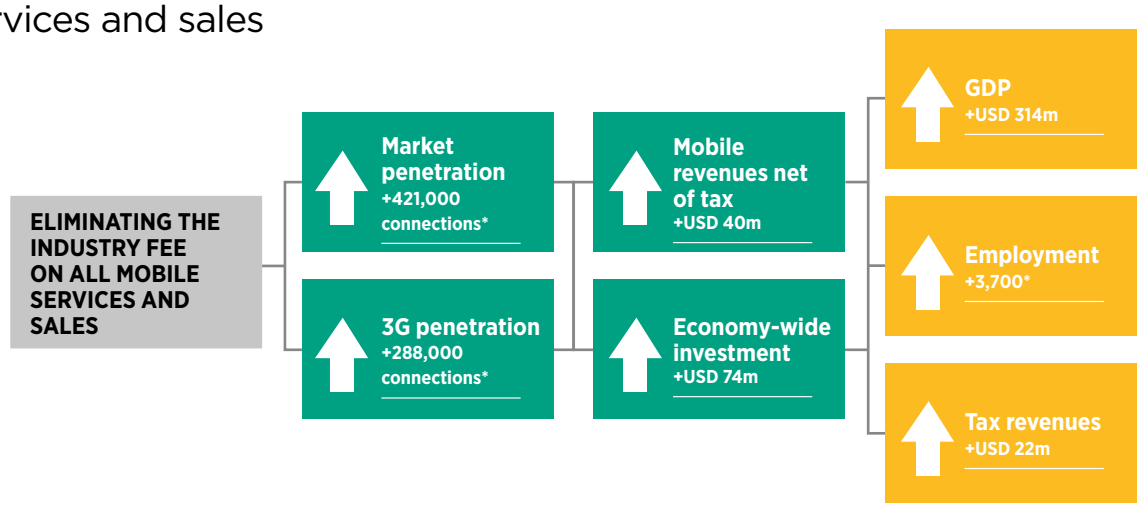
4. These changes to the mobile sector lead to direct impacts on value-add and employment and, through spill over effects, on the wider economy, in particular on real GDP, tax revenues, employment and investment.

5. An elasticity determines the impact of a change in mobile penetration on GDP growth. Multipliers are assumed which allow changes in mobile sector employment to affect the wider Mexican labour force. Productivity is calculated using the total factor productivity impact, described in the appendix.

3.2 Eliminating the industry fee on all mobile services and sales

The industry fee is levied on mobile calls, SMS, roaming, connections, mobile broadband, and mobile money and on the sale of 3G devices. The industry fee increases the cost of accessing and using mobile services, which constrains the overall mobile penetration. It is estimated that eliminating the 5% industry fee on all mobile services and sales could potentially drive the following impacts:

Potential impact of eliminating the industry fee on all mobile services and sales



*Source: Deloitte analysis based on operator data, GSMA intelligence database, IMF World Economic Outlook database and World Bank World Development Indicators database. Variables marked by * refer to the cumulative impact over the period 2016-2020, otherwise the potential impact in 2020 relative to the base case is reported.*

Figure 17

- Increased demand for mobile services has the potential to add more than 421,000 extra connections over the period 2016-2020, of which 288,000 are expected to be 3G mobile broadband connections. This could lead to 167,000 additional subscribers having access to mobile services.

- This uptake in mobile penetration could increase mobile revenues by up to an additional US$ 40 million in 2020 and the productivity of Tunisian workers and businesses, potentially leading to the Tunisian economy being 0.48% more productive.

- Through the direct impacts of the mobile operators and the indirect impacts generated by the activities enabled by mobile operators, increased mobile usage could lead to additional GDP growth, delivering up to an additional US$ 314 million in 2020 alone, and potentially generating US$ 74 million additional aggregate investments. Over the period 2016-2020, a total of US$ 1 billion could be added to the economy, investment could increase by US$ 233 million and employment could be provided to an additional 3,700 Tunisians.

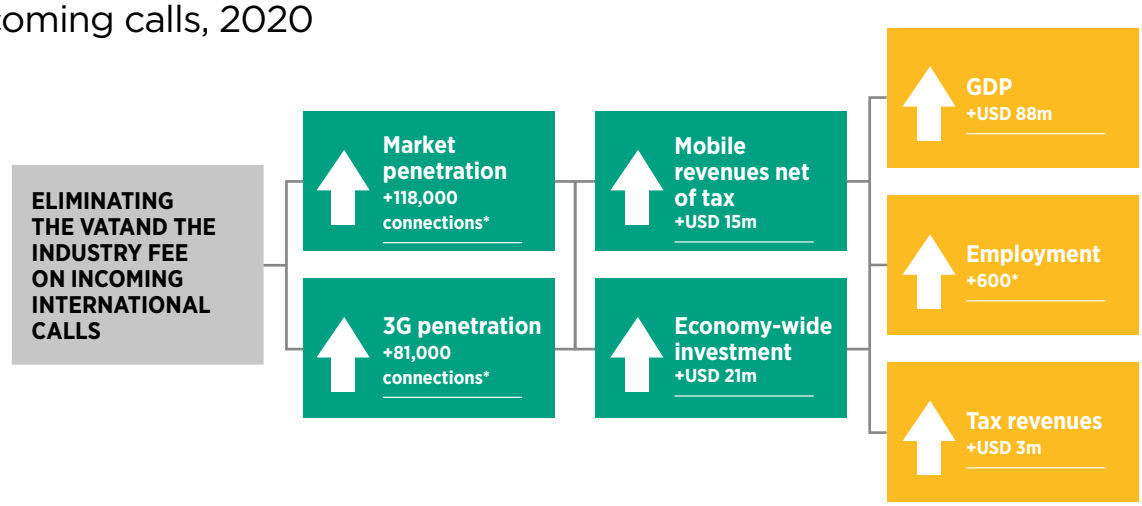
- Moreover, despite an initial fall in tax revenues after the reduction in tax, the government could potentially achieve tax neutrality within three years and in 2020 the increase in GDP growth has the potential to enable up to an additional US$ 22 million in tax revenues to be collected through more broad-based taxation. While the cumulative effect over the period 2016-2020 is a negative US$ 44 million, tax revenues are growing at an increasing rate and the cumulative effect is expected to be positive within a few years after 2020.

Eliminating the industry fee on mobile services and sales has the potential to encourage consumption and increase access to mobile, thus promoting higher mobile penetration in Tunisia. This could have large positive impacts in terms of digital inclusion and adoption of new 3G technologies, while at the same time increasing GDP growth and investment.

3.3 Eliminating the VAT and industry fee on international incoming calls

High taxes on international interconnection risk increasing wholesale international interconnection tariffs, which may affect the retail price international operators charge to their local costumers to make calls to Tunisia. High prices discourage consumption of international calls, which acts as a barrier towards international integration of the Tunisian economy, to the detriment of mobile uptake and the growth of the economy at large. Under the assumption that a proportion of the tax savings would be passed onto consumers in the form of lower prices, eliminating the VAT and industry fee on international incoming calls has the potential to generate the impacts illustrated below.

Potential impact of eliminating the VAT and industry fee on international incoming calls, 2020



*Source: Deloitte analysis based on operator data, GSMA intelligence database, IMF World Economic Outlook database and World Bank World Development Indicators database. Variables marked by * refer to the cumulative impact over the period 2016-2020, otherwise the potential impact in 2020 relative to the base case is reported.*

Figure 18

- Over the 2016-2020 period, increased demand for mobile services has the potential to add a cumulative 118,000 connections, of which 81,000 are 3G connections. The positive impact on penetration could lead to an additional 47,000 people having access to mobile services.

- This uptake in penetration could increase the revenues received by the mobile sector by US$ 15 million in 2020 and aggregate investment in Tunisia by up to US$ 21 million over the period 2016-2020.

- Through the direct impacts of the mobile operators and the indirect impacts generated by the activities enabled by mobile operators, increased mobile usage could lead to additional GDP growth, potentially delivering an additional US$ 88 million in 2020 and providing employment for an additional 600 Tunisians.

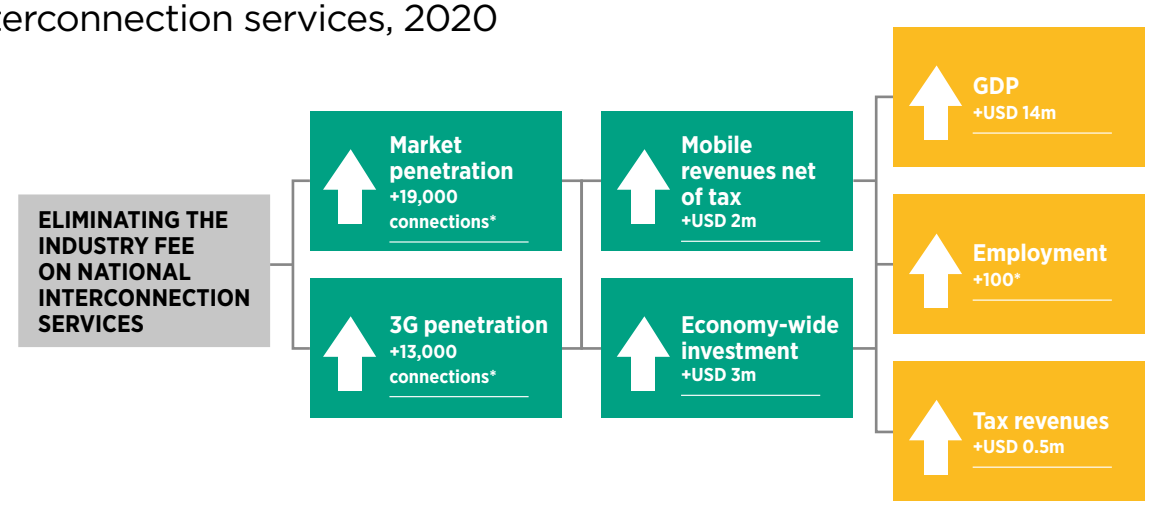
- Moreover, despite an initial fall in tax revenues after the reduction in tax, the government could potentially achieve tax neutrality within four years and in 2020 the increase in GDP growth could enable up to an additional US$ 3 million in tax revenues to be collected through more broad-based taxation.

Eliminating the VAT and industry fee on international interconnection could spur mobile penetration and reduce barriers to affordability, as operators pass on their savings to consumers. It could also help the international and regional integration of Tunisia, as the cost of connecting with other countries could decrease. This has wider economic impacts: specifically higher economic growth, greater productivity and growth in employment.

3.4 Eliminating the industry fee on national interconnection services

The industry fee is levied on both mobile services and national interconnection services, thus the same levy is applied twice to the same call. Rather than eliminating the industry fee on all mobile services and sales, the government could eliminate the industry fee on national interconnection services and thus remove the double taxation of calls on Tunisia. It is estimated that removing the industry fee on national interconnection services could potentially lead to the following impacts:

Potential impact of eliminating the industry fee on national interconnection services, 2020



*Source: Deloitte analysis based on operator data, GSMA intelligence database, IMF World Economic Outlook database and World Bank World Development Indicators database. Variables marked by * refer to the cumulative impact over the period 2016-2020, otherwise the potential impact in 2020 relative to the base case is reported.*

Figure 19

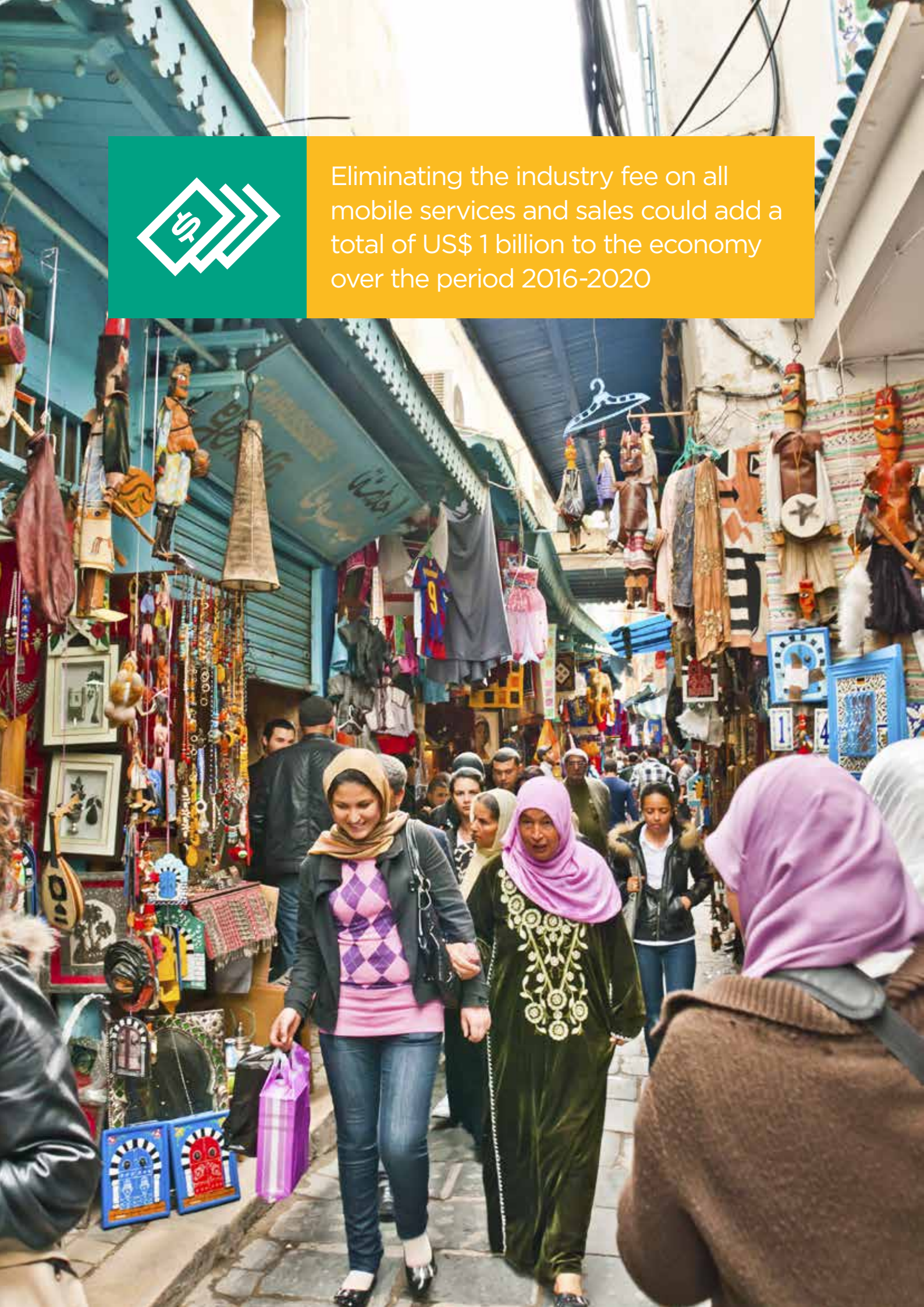
- Over the 2016-2020 period, increased demand for mobile broadband has the potential to add an extra 19,000 connections, including 13,000 3G connections.

- This uptake in mobile penetration could increase mobile revenues by up to an additional US$ 2 million in 2020 and the productivity of Tunisian workers and businesses, potentially leading to the Tunisian economy being 0.02% more productive.

- Through the direct impacts of the mobile operators and the indirect impacts generated by the activities enabled by mobile operators, increased mobile usage could lead to additional GDP growth, delivering up to an additional US$ 14 million in 2020 and potentially increasing aggregate investment by US$ 3 million. Over the period 2016-2020, a total of US$ 47 million could be added to the economy and employment could be provided to an additional 100 Tunisians.

- Moreover, despite an initial fall in tax revenues after the reduction in tax, the government could potentially achieve tax neutrality within four years and in 2020 the increase in GDP growth has the potential to enable up to an additional US$ 0.5 million in tax revenues to be collected through more broad-based taxation. While the cumulative effect over the period 2016-2020 is a negative US$ 5 million, tax revenues are increasing at an increasing rate and the cumulative effect is expected to be positive within a few years after 2020.

Finally, eliminating the industry fee on national interconnection services would remove the element of double taxation on the usage of mobile services.



Eliminating the industry fee on all mobile services and sales could add a total of US$ 1 billion to the economy over the period 2016-2020

4. Mobile Taxation in Tunisia: An Agenda for Reform

4.1 Contribution to fiscal stability

Total taxes and fees on mobile consumers and operators in Tunisia add to the cost of owning and using a phone and investing in mobile networks. Reducing the level of taxation on the mobile sector may impact government revenues in the short-term. However, by increasing mobile penetration and promoting economic growth, reducing the tax burden on mobile could also increase the tax base, presenting the potential for the government to recover these revenues.

The additional economic growth arising from the elimination of the industry fee on all mobile services and sales or on the VAT and industry fee on international incoming calls could create more revenue for the government and potentially enable the government to reach tax neutrality within three years.

The impact on government revenues of the tax policy alternatives analysed in this report are illustrated in Figure 20. The impacts of each policy are estimated independently and their interaction is not considered.

Potential additional tax revenues compared to the base case under tax policy alternatives (US$ millions)

Source: Deloitte analysis based on operator, GSMA intelligence database, IMF and World Bank data

Figure 20

4.2 Options to align mobile taxation to standard goods taxation

By transitioning to a taxation structure where mobile is taxed equally to other goods and sectors, the government of Tunisia can promote digital inclusion, increase productivity and generate economic growth, whilst also benefitting from increased tax revenues. This could produce positive spillovers throughout the Tunisian economy and society for the government, mobile operators, consumers and the economy as a whole. Moreover, the subsequent spread of mobile services could contribute to the economic and social objectives of Tunisia, improving access to life-enhancing services such as education and health applications and facilitating the country's transition to a knowledge-based economy.

Interviews with the mobile sector demonstrated a recognition of its role in supporting Tunisian government revenues and contributing to public services. However, while higher than standard taxation on the mobile sector can potentially deliver short-term benefits to the government, it would need to be balanced with the impacts on the cost of long-run socioeconomic development as well as long term government revenues. By working in partnership with the mobile operators to minimise the distortions and inefficiencies created by sector-specific taxation, the Tunisian government has the opportunity to make progress on its key ICT and development ambitions.

- **Development of ICT usage across sectors:** By reducing mobile-specific taxation, the government could increase the number of mobile broadband connections, promoting digital inclusion. This has the potential to enable the widespread use of ICT across areas such as healthcare, education and the provision of government services. This has in turn the potential to create new opportunities for innovation and the development of new applications and content, fostering further growth within the sector.
- **Increased economic development:** Based on the modelling described above, the tax reform alternatives examined have the potential to increase the usage of mobile services and uptake of mobile broadband. This has the potential to generate up to US$ 233 million in additional investment and increase GDP by up to US$ 1 billion over the 2016-2020 period if the industry fee on mobile services and sales were eliminated.
- **Support in the transition towards a knowledge-based economy:** Reforming mobile sector taxation has the potential to encourage widespread use of mobile broadband and the development of mobile applications for use in agriculture, healthcare and education. The creation of local content can also promote higher-skilled employment and the transition to a knowledge-based economy.
- **Improved network infrastructure:** Ensuring an equitable structure of regulatory fees has the potential to increase the investment required to further improve mobile broadband network infrastructure. Further international investment could allow for economies of scale for mobile operators, allowing reduced prices for consumers in the longer term and facilitating the spread of mobile broadband.
- **Sustainable government revenues:** Achieving the government's ICT objectives need not result in a reduction in government revenues in the medium to long term. By increasing productivity and economic growth, eliminating the industry fee on mobile services and sales is associated with tax neutrality in 2020.

Based on evidence from a series of studies[72] and the best practice principles outlined in Table 5[73], as well as on consultation with GSMA and mobile operators, a number of areas for tax reform have been identified which could support the mobile sector to further contribute to economic growth and government revenues over and above its current impact:

- **Reduce specific taxation of the mobile sector:** Higher than normal taxation on mobile operators and consumers distorts production and consumption behaviour; it may limit usage of digital services, reduce the ability of mobile operators to finance investment in digital infrastructure, and can in the long term reduce government revenues.

- **Apply phased reductions of taxes on established services:** A phased reduction of mobile specific taxes offers the government the opportunity to benefit from the economic contribution from mobile whilst limiting short-term fiscal costs.

- **Facilitate the development of emerging services through supportive taxation:** The growth of mobile data and other innovative applications opens up the possibility for the sector to increase its economic value through a whole new generation of products and services ranging from health care services to education and finance.

- **Reduce taxation complexity and uncertainty of mobile taxation:** Taxation on the mobile sector has increased over the years in Tunisia. Any unpredicted tax change that occurs after investment in spectrum licence is made may negatively impact an operator's business plan. The risk of future tax rises is priced into investment decisions and can therefore be expected to reduce both FDI and domestic investment in the medium-term.

- **Streamline tax regulations and reduce uncertainty over tax implementation:** Inefficient tax practices raise compliance costs for businesses and forces them to divert scarce resources from more productive uses towards tax administration issues. This constrains innovation and competition, limiting the performance of the economy.

72. GSMA/Deloitte, studies on digital inclusion and mobile taxation in Ghana, Tanzania, Pakistan; GSMA/Deloitte, Mobile taxes and Fees - A Toolkit of Principles and Evidence, 2014.
73. IMF, Tax policy for developing countries, 2001.

Appendix A Methodology

A.1 Estimation of the economic impact of a tax change

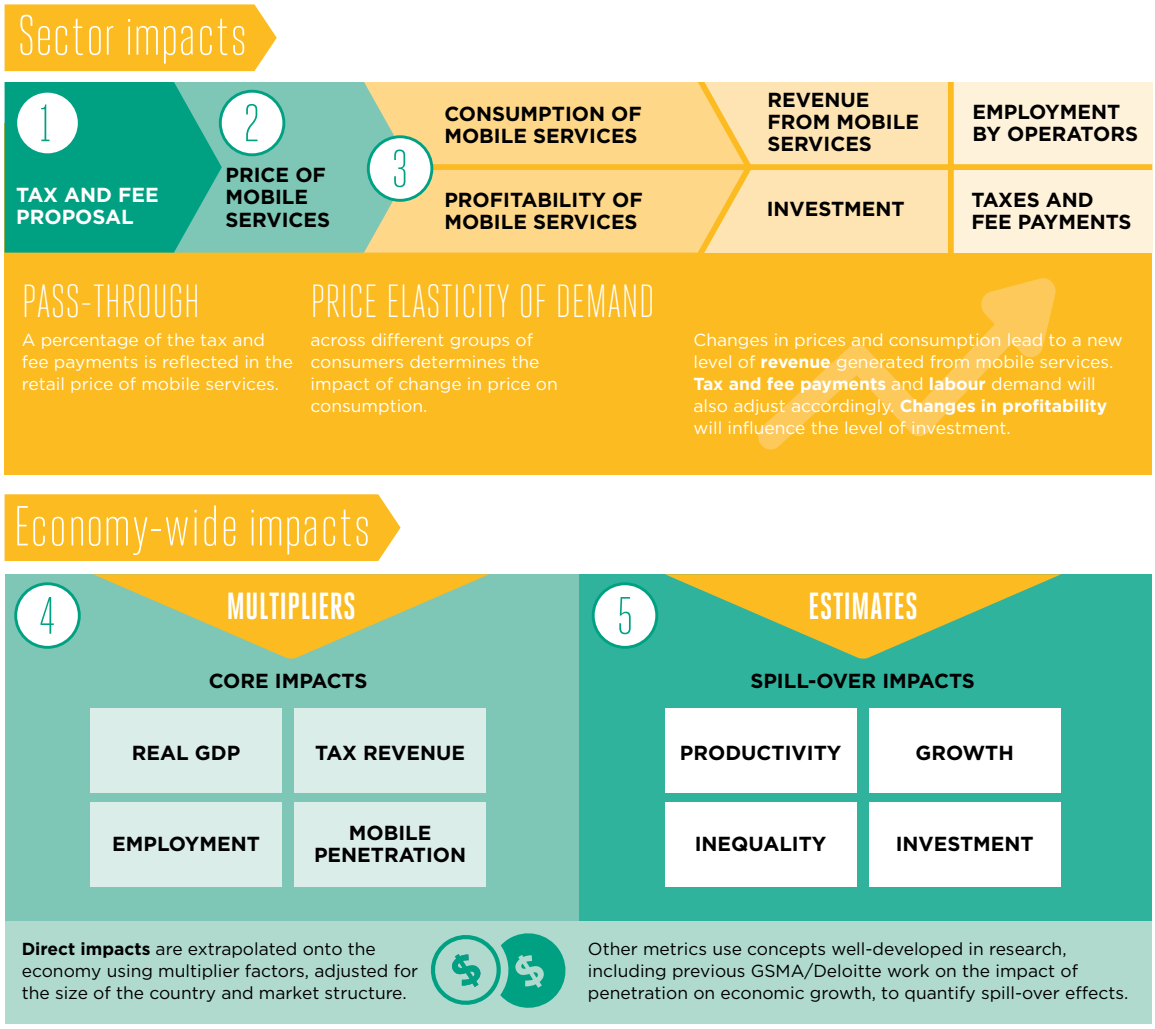
In order to conduct the tax scenario analysis, an economic model was created to describe the mobile sector and the macro-economy of Tunisia. This model is able to forecast the impacts of more than 25 sector-specific and macroeconomic variables up to 2020, which can be driven either by removing or changing current taxes and fees or by the introduction of a new tax or fee.

Firstly, a base case scenario is developed for the mobile sector and economy, where taxes and fees remain at their current level throughout the period 2016-2020. Then, a simulation of alternative policy scenarios quantifies the economic impact of reformed mobile sector taxation. It is assumed that the tax policy is implemented in 2016 and the model estimates the effects up to 2020. The impacts of each policy are estimated independently and their interaction is not considered.

Modelling the macroeconomic impact of changes to mobile taxation in Tunisia

As illustrated in Figure 21, the following steps are involved in the modelling process:

Schematics for modelling the economic impacts of mobile taxation changes



Source: Deloitte analysis

Figure 21

- The tax or fee change affects the price of mobile services. This depends on the extent to which the tax reduction is passed on to consumers, modelled by a pass-through rate[74] which determines the percentage of the tax and fee payments that is reflected in the retail price of mobile services. All assumptions in the model are described in more detail in the section below.

- Changes to the price of mobile services affect their consumption. In order to estimate this, assumptions are made on the price elasticity of demand[74], which measures how much demand for mobile services will change in response to a price change.

- Changes in prices and consumption alter the amount of revenue generated from mobile services. Increased demand generates additional employment opportunities in the sector, while increased operator revenues enable additional capital expenditure on the development of network infrastructure.

- These sector impacts lead to economy-wide impacts, which are estimated through assumptions that describe the impact of the mobile sector on the wider Tunisian economy. These effects include the impact on GDP, calculated through a multiplier that links mobile and 3G penetration rates to economic growth, and the effect on employment, calculated through a multiplier, which estimates the number of jobs created

74. An elasticity describes the quantitative impact of a variable on another variable; the usual notation is that a 1% increase in a variable will lead to an x% change in another variable.

across the economy for every job created within the telecom sector. The proliferation of mobile services is captured by an increase in productivity, quantified through the change in Total Factor Productivity (TFP).

- Thanks to additional GDP growth from reformed taxation on mobile, the potential short-term loss of tax revenues from the mobile industry can be offset by tax revenues from more broad-based consumer and operator taxes.

The inputs for the model are provided by operators in Tunisia, the GSMA and publicly available statistics from the World Bank and the IMF and include forecasts for 2015 and subsequent years. The outputs are derived based on estimates of the elasticity of demand for mobile services from a number of developing markets, while the impacts of mobile and broadband penetration on GDP have been derived from econometric studies of similar developing markets.

A.2 Key assumptions behind the model

The assumptions underlying the model have been researched from a review of academic literature and previous studies in this area. These are discussed in more detail below.

Pass-through rates

Taxes and fees paid by mobile operators and consumers may be completely or partly passed-through to the end-consumer prices. The level of pass-through of taxes and fees to final prices will depend on market power and the price elasticity of demand, among other factors. For this analysis, an average pass-through rate of 75% has been assumed for taxes that fall directly on retail prices, while an average pass-through rate of 60% has been assumed for taxes that fall directly on wholesale prices. These assumptions were based on market characteristics and Deloitte analysis of telecoms markets worldwide.

Price elasticity of demand

A change in the price of mobile services leads to a change in the consumption of these services, both in terms of ownership and usage. Consumption changes depend on the price elasticity of demand, that is, the responsiveness of consumers to price changes. The assumptions regarding elasticity of demand are based on a review of studies conducted in a number of developing markets on the elasticity rates observed. Given the level of market penetration and historical price developments in Tunisia the elasticity of demand for mobile subscriptions is assumed to be -0.76[75]. For those that own mobile devices, demand for mobile services is more elastic: the elasticity of demand for mobile services is assumed to be -0.88, based on a number of studies within the field[76].

Employment multiplier

The employment multiplier is used to estimate the impact of a change in employment in the sector on total employment in the economy. The magnitude depends on the economic features of the sector, such as the degree of interconnection across the supply chain and the openness of the economy. Based on the characteristics of the Tunisian mobile sector and the general economy the employment multiplier is assumed to be 6.21[77]. That is, for every additional job created within the mobile sector, an additional 6.21 jobs are generated in the wider Tunisian economy.

Market penetration Impact

There is substantial evidence in the literature on the impact of mobile penetration on GDP growth. Analysis conducted by the GSMA on the impact of mobile and 3G penetration on GDP growth estimated that a 1% increase in market penetration leads to an increase in GDP growth of 0.14 percentage points[78]. In terms of the impact of internet penetration, it is assumed that a 1% increase in internet penetration increases the GDP growth rate by 0.077 percentage points[79]. This model does not consider switching between 2G and 3G services and so these impacts are treated separately[80].

75. Baigorri and Maldonado (2010); UK Competition Commission, 2003.
76. See, for example: Gruber and Kontroupis, 2010, Mobile telecommunications and the impact on economic development; Wheatley, J. J., 1998, Price elasticities for telecommunication services with reference to developing countries; GSMA, 2005, Tax and the digital divide: How new approaches to mobile taxation can connect the unconnected. London: GSMA
77. This figure was based on a number of studies conducted in developing and developed countries; see, for example, Moretti, 2010; O2 for ONS, 2002; Ovum, 2010; Zain, Ericsson, 2009; Kaliba et al, 2006.
78. This is based on a study of 40 economies over the period 1996-2011; for full details of the methodology, see http://www.gsma.com/publicpolicy/wp-content/uploads/2012/11/gsma-deloitte-impact-mobile-telephony-economic-growth.pdf
79. Qiang, C. Z. W., Rossotto, C.M., 2009, Economic Impacts of Broadband, in Information and Communications for Development 2009: Extending Reach and Increasing Impact, World Bank, Washington D.C., 35-50.
80. That is, given that it is not known whether a new 3G subscriber may previously have been a mobile user, this is treated as an increase in internet penetration only, not as an increase in mobile and internet penetration.

Total Factor Productivity Impact

The impact on TFP is calculated based on the change in GDP, employment and investment. TFP is a measure of economic productivity that accounts for changes in output over and above those expected as a result of increased employment and investment. It is defined as follows:

$$TFP = \frac{GDP}{Capital^{a} Labour^{\beta}}$$

where it is assumed that a = 0.3 and β=0.7[81].

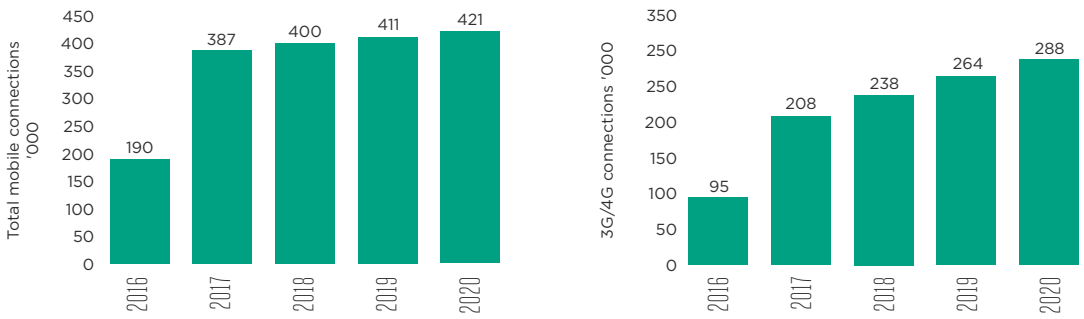
A.3 Scenario simulation results

This report uses a macroeconomic model in order to assess the impacts of a change in taxation policy on the mobile sector and the wider economy. Three scenarios were addressed and each compared against the base case scenario, where there is no change in tax policy. The overall findings of each scenario are described in more detail in the sections below, on the assumption that the change in tax policy is implemented in 2016.

Scenario 1

Scenario 1 models the elimination of the industry fee on mobile services and sales. In particular, the reduced cost of usage following such elimination of the industry fee could stimulate an additional 421,000 mobile connections in 2020, with a forecasted increase by 0.91 million minutes of use relative to the base case. This could raise total market penetration by 2.20% relative to the base case in 2020, extending access to mobile telephony across Tunisia. The increased affordability has the potential to encourage consumers to take-up new services and additional 3G/4G connections could be up to 288,000 in 2020.

Potential additional impact on total mobile penetration (left) and mobile broadband penetration (right) in Scenario 1 relative to the base case



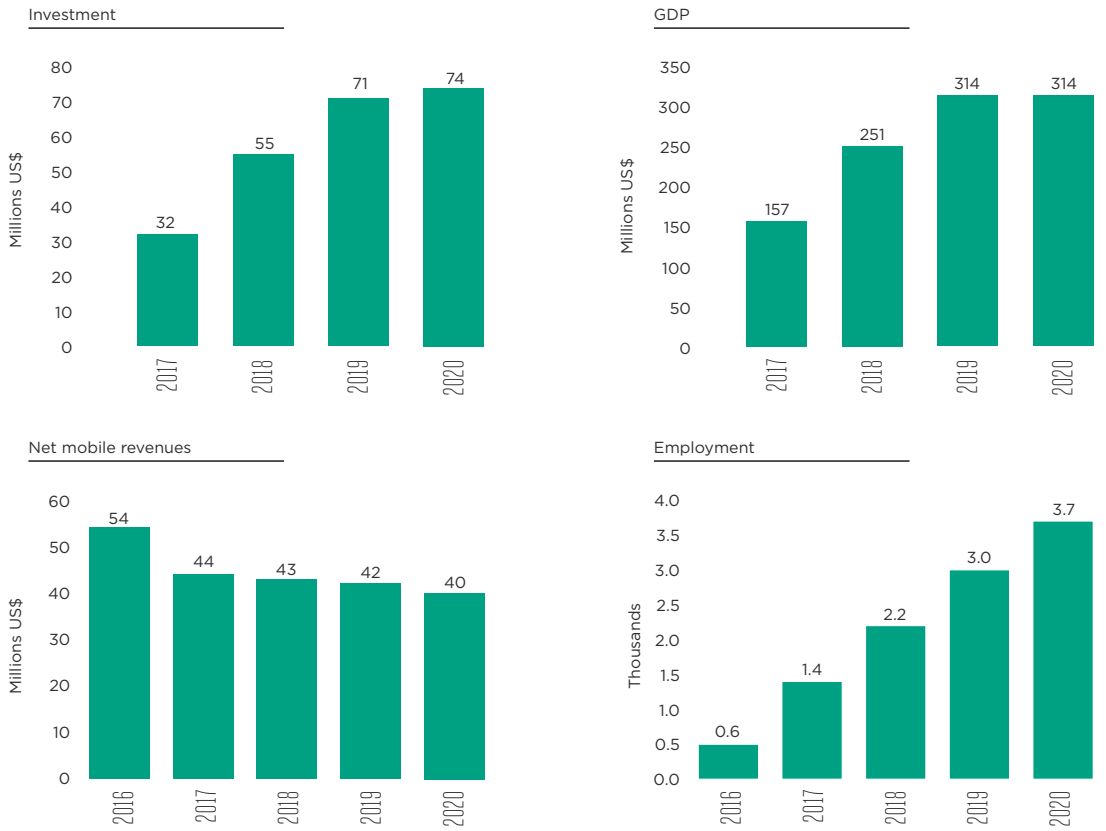
Source: Deloitte analysis based on operator, GSMA, IMF and World Bank data

Figure 22

81. Bassanini A and Scarpetta S, 2001, "The Driving Forces of Economic Growth: Panel Data Evidence for the OECD countries".

The increase in connections could subsequently benefit both the mobile sector and wider economy. Increased usage could increase operator revenues by US$ 40 million, enabling an additional US$ 104 million of capital expenditure, which could be used for expanding additional sites across Tunisia, further increasing coverage of mobile broadband services. Increased economic activity and the development of technology and innovation as a result of the growth of the mobile sector could then be reflected in an additional US$ 314 million and US$ 74 million in GDP and investment respectively relative to the base case in 2020, whilst employment could also rise by over 3,700 over the 2016-2020 period.

Potential additional impact on macroeconomic indicators in Scenario 1 relative to the base case

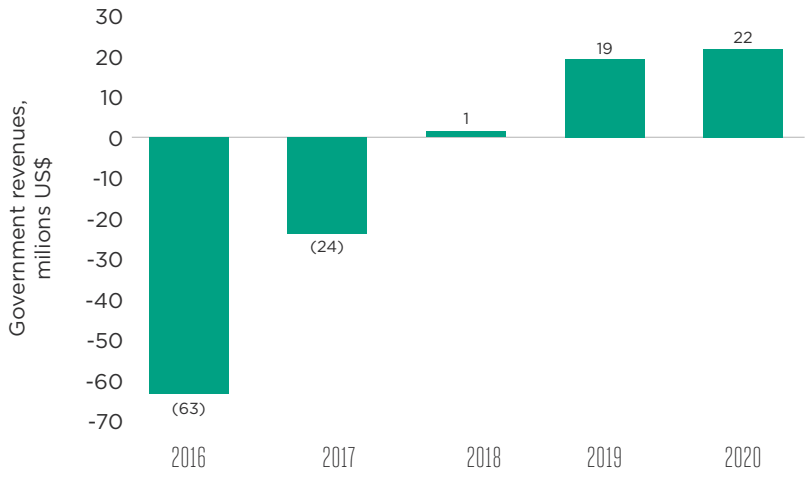


Source: Deloitte analysis based on operator, GSMA, IMF and World Bank data

Figure 23

As a consequence of wider economic growth, it is estimated that the government of Tunisia could also benefit from increased tax revenues in 2020 relative to the base case. Although tax revenues could fall in the first years following the elimination of the industry fee, the expansion of the tax base following wider economic growth could allow for tax neutrality in 2018 and an increase in tax revenues by US$ 22 million relative to the base case in 2020.

Potential tax revenues in Scenario 1 relative to the base case



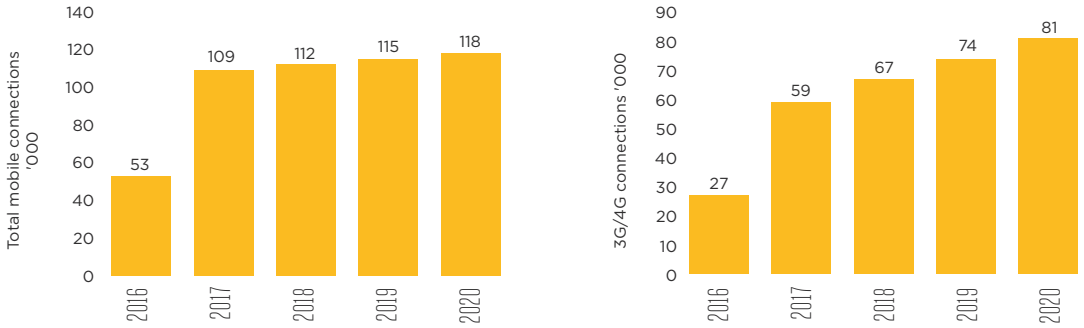
Source: Deloitte analysis based on operator, GSMA, IMF and World Bank data

Figure 24

Scenario 2

Scenario 2 models the elimination of the VAT and industry fee on international incoming calls. It is estimated that the reduction in the cost of mobile services could stimulate an additional 118,000 mobile connections in 2020 relative to the base case. This represents a 0.62% increase in total mobile penetration relative to the base case. Furthermore, the reduced cost of mobile usage could generate an additional 0.25 billion minutes of use in 2020 compared to the base case scenario.

Figure 25: Potential additional impact on total mobile penetration (left) and mobile broadband penetration (right) in Scenario 2 relative to the base case



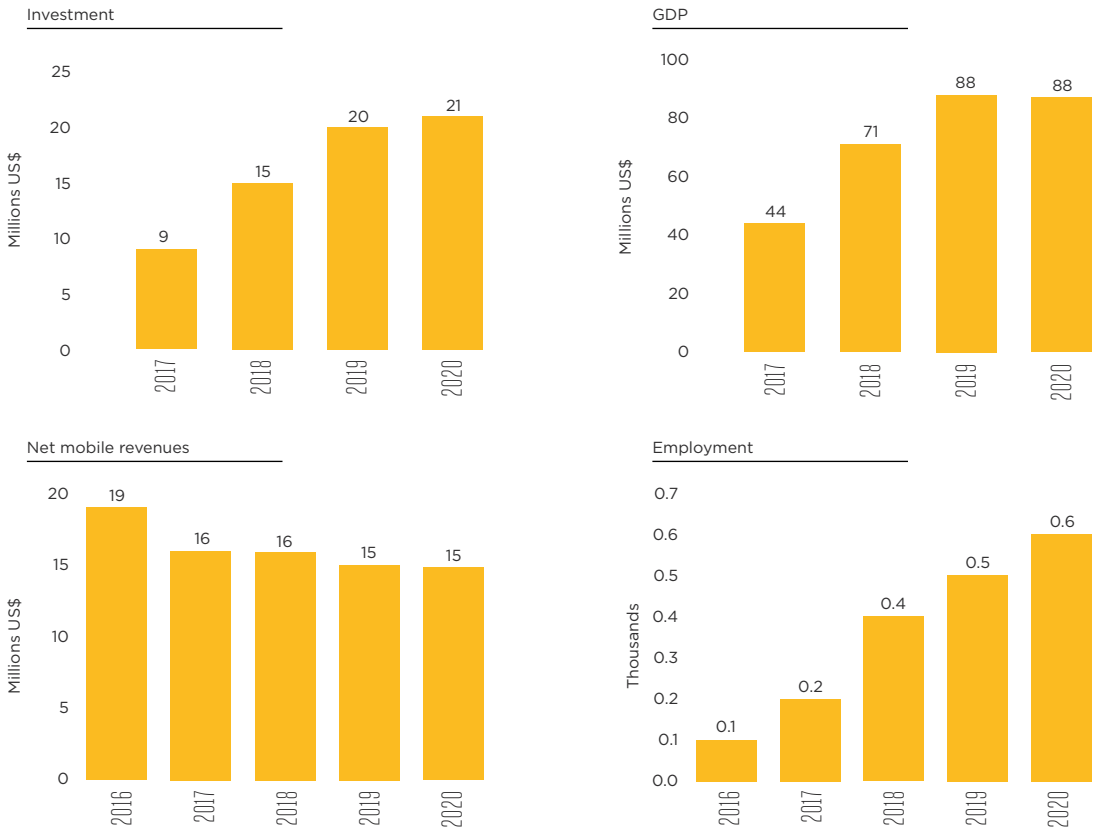
Source: Deloitte analysis based on operator, GSMA, IMF and World Bank data

Figure 25

Positive spillovers across the economy as a consequence of this growth could stimulate an additional US$ 88 million in GDP and US$ 21 million worth of investment in 2020 relative to the base case. This could create employment opportunities for over 600 Tunisians, whilst this workforce could also be 0.14% more productive.

The increase in usage and take-up of new services could also benefit mobile operators in the form of an additional US$ 15 million in total sector revenues. This could allow mobile operators to increase capital expenditure on the development of network capacity by US$ 18 million relative to the base case in 2020, which could deliver additional mobile broadband sites across the region.

Potential additional impact on macroeconomic indicators in Scenario 2 relative to the base case

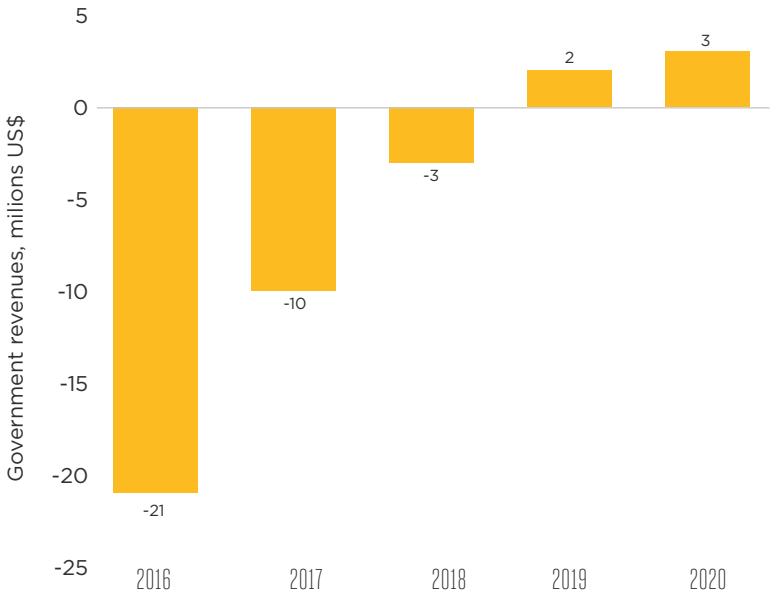


Source: Deloitte analysis based on operator, GSMA, IMF and World Bank data

Figure 26

Together with this macroeconomic improvement, the government of Tunisia stands to benefit from increased tax revenues as a result of wider economic growth and the expansion of the tax base. It is estimated that the government could achieve revenue neutrality by 2019 with additional tax revenues of US$ 3 million in 2020.

Potential tax revenues in Scenario 2 relative to the base case



Source: Deloitte analysis based on operator, GSMA, IMF and World Bank data

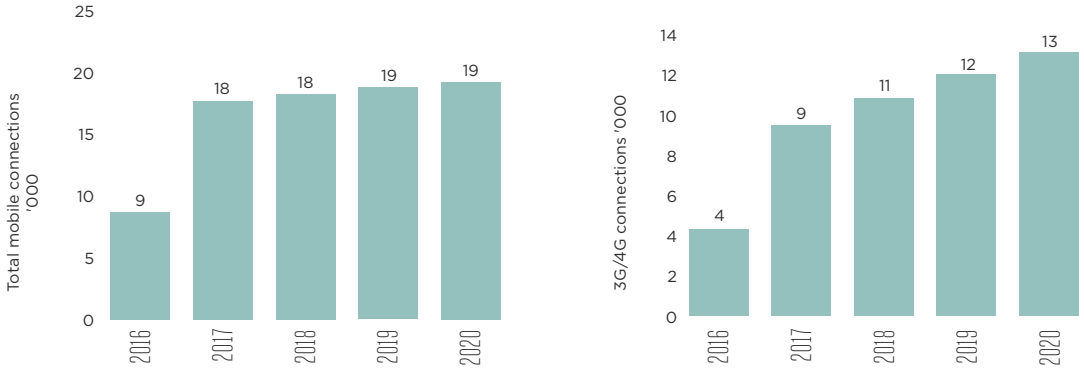
Figure 27

Scenario 3

The third scenario models the elimination of the VAT and the industry fee on international incoming calls. Through the savings achieved by mobile operators, this could increase investment and demand for mobile services, meanwhile decreasing barriers to affordability and thus further sustaining penetration and economic growth.

The tax reduction could decrease the cost of accessing mobile services, increasing total connections by 19,000 of which 13,000 could be mobile broadband enabled. It is estimated that this could represent an increase in total mobile penetration of 8,000 unique subscribers relative to the base case in 2020.

Potential additional impact on total mobile penetration (left) and mobile broadband penetration (right) in Scenario 3 relative to the base case

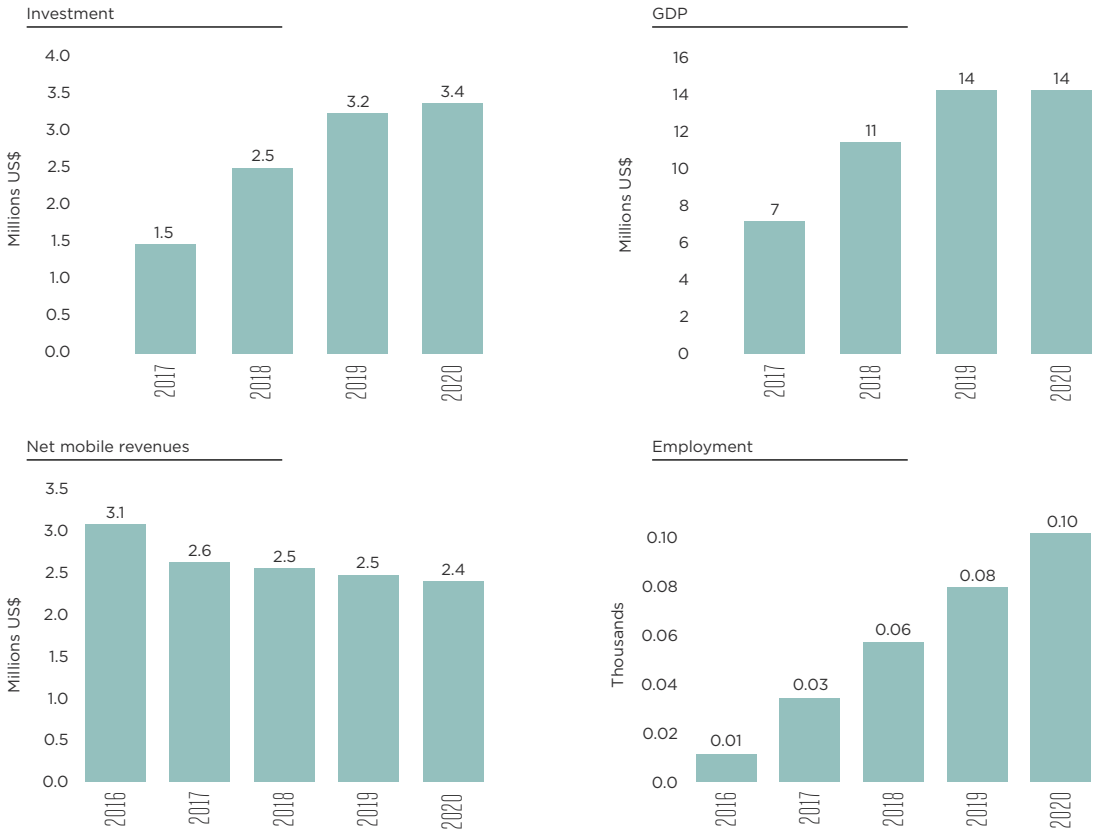


Source: Deloitte analysis based on operator, GSMA, IMF and World Bank data

Figure 28

The increase in usage of mobile services could increase net operator revenues by US$ 12 million relative to the base case in 2020. The positive spillovers from the mobiles sector, particularly towards the development of technology and knowledge-based sectors in Tunisia, have the potential to increase GDP and investment across Tunisia by US$ 14 million and US$ 3 million respectively, whilst also increasing employment by over 100 relative to the base case in 2020.

Potential additional impact on macroeconomic indicators in Scenario 2 relative to the base case

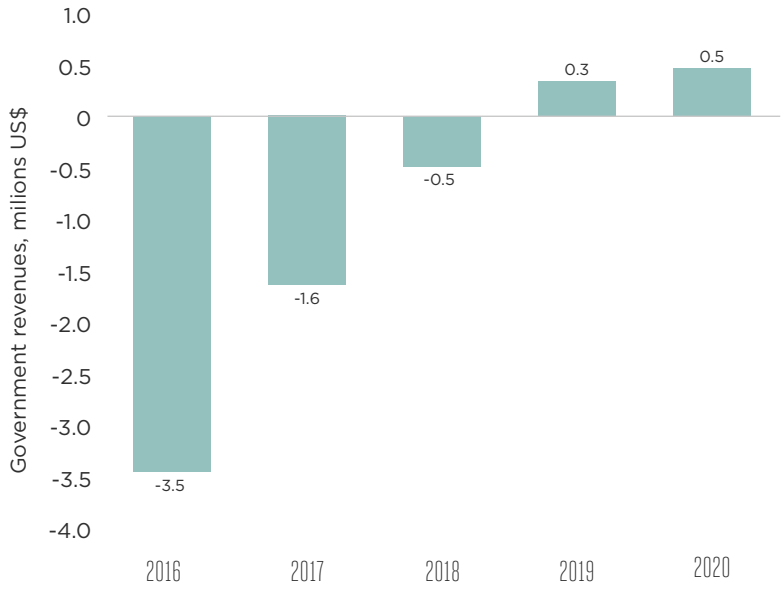


Source: Deloitte analysis based on operator, GSMA, IMF and World Bank data

Figure 29

The increase in growth of the mobile sector and wider economy, following the elimination of the industry fee on national interconnection services, could subsequently broaden the tax base and hence government tax revenues over time. It is estimated that by 2019 the government of Tunisia could start gaining tax revenues following an initial loss of US$ 3.5 million in 2016. Indeed in 2020, the government could potentially gain US$ 0.5 million in tax revenues in 2020.

Potential tax revenues in Scenario 3 relative to the base case



Source: Deloitte analysis based on operator, GSMA, IMF and World Bank data

Figure 30

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GSMA HEAD OFFICE
Floor 2
The Walbrook Building
25 Walbrook
London
EC4N 8AF
United Kingdom
Tel: +44 (0)207 356 0600
Fax: +44 (0)20 7356 0601